Post-Discharge symptoms and analysis for COVID-19 patients

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Dedicated to my Father, Shahjehan (late).

Abstract

Coronavirus was initially recognized as human COVID by researchers in 1965. Different strains of coronavirus appeared in the following years MERS, SARS-1. Thousands of cases were reported in individuals that to led many casualties, in 2019.

New strains of coronavirus emerged, known as covid-19that started to spread from Wuhan, China. It was labeled a worldwide epidemic by the World Health Organization (WHO) in March 2020, the first since 2009. Patients with covid-19 experienced gentle to extreme indications like fever, cough, weariness, shortness of breath, migraine, loose bowels, nausea, and vomiting. As SARS cov-2 is a novel infection, initially the infected patients were treated in a single room along with the utilization of antiviral medication, including oseltamivir, ribavirin, and ganciclovir, lopinavir, and ritonavir to decrease the viral burden. Indications during the contamination may not resolve unexpectedly grumble about persistent side effects, even a long time after the disease. The research is based on observing the symptoms of COVID and post-COVID in patients who perform PCR tests at a hospital. Sample of 26 males and 34 females. Services were taken and their symptoms were noted during and after the quarantine. During the assessment of the covid-19 pandemic, it was seen that overall unexpected issues have gotten even after the onset of intensive covid-19. The prolonged aftereffect stays unexplained. The point of this examination is to represent the persistent symptoms in patients who were released from the health center and to explore the related element of danger. The impact of the study is fundamental in investigating the components and potential persistent post-COVID disorder. It presents a system of procedures for prognosis and handling of patients with suspected or affirmed persevering post-COVID conditions.

Keywords: older adult, Covid-19, prevalence, vaccination

What is already known?

- Vaccination is widely regarded as a critical component in combating the expansion of COVID-19 over the world.
- A number of elements can affect COVID-19 vaccination acceptance.
- Health Belief Model is an essential theoretical framework for interpreting health-related behaviors, notably in terms of health-care utilization.

What the paper adds:

- This research was mainly focusing on post-discharge symptoms and analysis of patients after being given the dose of the vaccination for the virus
- Around half of the trial respondents accepted the vaccination.
- The Health Belief Model, which includes prevalence and severity, advantages, obstacles, and indications to action, was found to be an independent determinant of older persons' acceptance of the COVID-19 vaccination.

Contents

Chapter 1

Introduction

The COVID-19 virus is a new disease that affects the respiratory system of humans and is caused by "coronavirus 2," a member of the coronavirus family, which causes extreme respiratory illness (SARS-CoV-2). In December 2019, the COVID-19 virus was discovered. Since its creation in Wuhan, China, it has spread all over the world. Health system concentrated on detecting, diagnosing, and isolating victims; also tracking and isolating, perceived risks, and public hygiene during the epidemic.

The COVID-19 pandemic is still wreaking havoc on health systems all over the world. Acute symptoms such as fever, cough, and breathing issues, as well as other multisystemic signs and symptoms, are typical of the condition. The majority of patients recover entirely within two weeks of the onset of symptoms, although in severe cases, recovery might take up to six weeks. However, new evidence suggests that COVID-19 symptoms may continue or recur in some people after they have recovered (Nalbandian, 2021 #321), (Amenta, 2020 #322). These post-recovery symptoms have all been labeled as "post-acute COVID-19 syndrome (PCS), protracted COVID-19, and post-acute sequelae of severe acute respiratory syndrome 2 (SARS-CoV-2) infection" (Logue, 2021 #320).

Currently, the world is facing a novel infectious disease with no treatment or herd immunity as a result of the coronavirus disease. Since its emergence at the end of 2019, the epidemic has continued to have an impact on many aspects of human life and constitutes a major hazard to health, welfare, and the economy (WHO, 2020a). “Over 219 million cases of COVID-19 and 4.6 million deaths had been reported worldwide as of early August 2021” (John Hopkins University, 2021). Older people are more vulnerable to COVID-19 because of immunological

senescence, co-morbidity, and overall weakness. Additionally, they participate more actively in society, increasing the risk of virus spread (WHO, 2011). As a consequence, COVID-19 becomes ever more prevalent among older adults. In Egypt, the death rate from COVID-19 is 60% among those over the age of 60, while the infection rate is 7% among those over the age of 70 (WHO, 2020).

The statistical data shows that COVID-19 has caused 165,055 cases, 155,041 recoveries, and 2,063 fatalities in Nigeria as of April 29, 2021. Although different authors from Nigeria have reported the breadth of clinical manifestations of acute COVID-19, there is research on post-discharge symptoms among hospitalized COVID-19 patients in Nigeria. Following a median follow-up period of around 2 weeks after discharge, 40.6 percent of patients in an outpatient clinic in Lagos state, southwest Nigeria, displayed signs of PCS, according to research. We present post-discharge symptoms among hospitalized COVID-19 patients on follow-up in a COVID-19 treatment center in Bayelsa State, south-south Nigeria, to further our understanding of post-acute COVID-19 in Nigeria.

Moreover, over the last few months, the corpus of research on the outpatient phase of COVID-19 disease has significantly developed; nevertheless, there is a lack of knowledge regarding the long-term recovery from the acute outbreak. The virus is distinguished by reports of delirium and encephalopathy, hypercoagulability, and a high rate of delirium and encephalopathy, as well as a high rate of intubation and death in hospitalized patients. However, it's unclear how long health effects will last once a patient is discharged from the hospital. Relying upon the characteristics of the disease, the initial traits from the point of release to the start of treatment, the location of diagnosis, and some socioeconomic attributes of the patient, the

option of admittance to a regular hospital, hospital discharge, and dismissal to the home hospital may take up to fourteen days. (Vintzileos et al., 2020).

People who had the symptoms of the deadly virus were admitted to healthcare centers and later on, discharged after their health got improved even before the fourteen-day period of isolation had ended up, had a favorable polymerase chain reaction (PSR) or a CT scan. The same process can be followed by the patients who were afflicted by the disease, treated, and had a favorable outcome of tests at the health care facilities (Maher, Bahadori, Ravangard, & Zaboli, 2020). There are three stages of the COVID-19 disease. According to Amenta et al.3, PCS can be divided into three categories: 1) The lingering symptoms even after the recovery, 2) post-recovery persistency of the organ dysfunctions, and 3) the occurrence of new traits after a mild illness. The most prevalent signs of PCS have been described as fatigue, dyspnea, joint discomfort, and cough, but sequelae have been documented in a variety of organ systems.

Traditional hospitals are collaborating in accordance to the guidance being provided by the University of Medical Sciences. Referral clinics for outpatients were modified by the Ministry of Health. COVID-19 disease symptoms led some people to the hospital, while others went to referral clinics. If the patient's symptoms are severe, they will be admitted to the hospital. People who are infected with minor symptoms will be recommended to a healthcare facility if they are personally satisfied with that particular health center. Tests and CT scans are used to keep track of the family members, and if the findings are positive, the infected individual is admitted to the hospital. The family members' health will be followed on a daily basis for fourteen days if the results are negative. They must be hospitalized if they are not satisfied with their healthcare facilities but have the following conditions to avoid the sickness from growing further. Everyone must go through the same procedure, receive a follow-up, and remain within

the proximity of the healthcare facility for the isolation period, who are discharged from these healthcare centers.

According to a law passed by the University of Medical Sciences, people endured with the virus who need to be hospitalized will be transported there via an ambulance which will be provided by either the healthcare center or the referred clinic. From the occurrence of the COVID-19 traits to the completion of the isolation, period will be the measurable fourteen-day quarantine period. Individuals with moderate to severe physical ailments are routinely watched and provided with health services, such as oxygen treatment, dietary assistance, drug monitoring, and surveillance of vital signs and blood oxygen, among other things.

To fully comprehend the disease's natural history, accurately forecast the disease's cumulative impact beyond hospital treatment and mortality, and determine if inpatient or post-discharge pulmonary rehabilitation should be pursued, long-term repercussions of virus must be examined. This paper also describes the overall healthcare, including the mental and the physical wellbeing of the people who are discharged from the hospital following acute illness from the disease (Qian et al., 2020). The hospital offers both a psychological health therapist and a religious health counselor due to the patients' psychological challenges and conditions, the lack of connections, the seclusion from their relatives, and the duration of hospital stays. (UK, 2020).

COVID-19 has a five to six days incubation period, which is the time between introduction to the disease and initial days when its traits were noticed, although it can take up to fourteen days for virus traits to develop; hence, others may become infected during this time. Accommodation will be provided to the family members of the patients who are hospitalized, within the medical centers (Kassaeian, Gohari, Masoumi, Ghomian, & Dehghani, 2021). Once the person has been inflicted with the virus and admitted to the healthcare center, the patient’s

residence will be disinfected as well. We aim to provide guidance to various other medical healthcare centers, recovery houses and clinics through our experience.

Researchers have urged immune systems to combat the present epidemic, despite the fact that most of those medications failed to show success in COVID-19 treatment. (Vallianou et al., 2021; Mirzaei et al., 2021). Therefore, widespread vaccination has become the most expected intervention for COVID-19 transmission control and the primary strategy to manage the pandemic (WHO, 2020). Due to a phenomenon known as vaccine hesitancy, some people did not get vaccinated despite the abundance of COVID-19 vaccinations (MacDonald, 2015). To achieve passive immunity, it is predicted that 60 to 90 percent of COVID-19 vaccine recipients must be vaccinated (Anderson et al., 2020). In Egypt, on the fifteenth of September 2021, only about 7.42% of the population was vaccinated against COVID-19 (4.07% of people are fully immunized against COVID-19, and those who were partly vaccinated is 3.35%) (Mathieu et al., 2021). As a result, it is critical to understand the key factors influencing older adults' willingness to receive COVID-19 vaccine. Such understanding would aid in the development of effective strategies, and intervention plans to improve COVID-19 vaccination programs' acceptability and dissemination among older adults (Johns Hopkins University, 2021).

“The use of applied theoretical models is essential for increasing older adults' acceptance of COVID-19 vaccination. Employing a conceptual background can help healthcare professionals create an efficient behavior change intervention, according to Webb and Sheeran's (2006) analysis of the empirical data on changes in health behavior. The Model of Health Beliefs (HBM) has been employed as a conceptual framework to explain and forecast preventative behavior in terms of belief structures, with a particular emphasis on the connection between lifestyle factors and health care consumption (Webb &Sheeran, 2006). The study is premised on

the notion that it can predict health behavior given three major interacting components: individual perceptions, moderating factors, and action likelihood. Risk perception, intensity, advantages, cues to action, obstacles, and self-efficacy are the most frequently mentioned HBM concepts (Rosenstock, 1988). Modifying factors such as patient attributes, demographics, emotions, and specific information, according to the HBM, greatly influence the beliefs of an individual and vaccine acceptance (Becker, 1974; Orji et al., 2012).

Previous research revealed that COVID-19 vaccine hesitancy or resistance ranged from 31% in England to 35% in Ireland(Murphy et al., 2021). In the United Kingdom, 25% reported vaccine apprehension, while 6% reported vaccine resistance(Shermanet al., 2020). In Kuwait, Saudi Arabia, and Jordan, researchers discovered high rates of COVID vaccination apprehension (Sallam et al., 2021). COVID-19 vaccination apprehension was indicated by 54% of Egyptian adults, whereas vaccine non-acceptance was reported by 21% (Omar & Hani, 2021). In addition, typical studies show that women, the unemployed, and those with lower levels of education had lower rates of COVID-19 vaccine compliance (Malik et al., 2020; Rhodes et al., 2020; Paul et al., 2021) and this is positively correlated with both the perceived benefit of the immunization and the perceived hazards associated with COVID-19 (Dror et al., 2020; Williams et al., 2020). (Reiter et al., 2020; Sherman et al., 2020). However, in other research, concerns regarding the efficacy or efficiency of the vaccine were given as justifications for declining COVID-19 inoculation. (Neumann-Böhme et al., Fisher et al., Palamenghi et al., 2020; Sherman et al., 2020) Nonetheless, numerous researches have been conducted to investigate the numerous constructs of the HBM that could estimate the general population willingness to receive the vaccination (Mercadante& Law, 2021; Wong et al., 2020; Paul et al., 2021). However, there has been no

research into the numerous constructions of the Health Belief Model that could analyze COVID-19 vaccine willingness and attitudes among Egyptian older adults.

There is an urgent need for a more current understanding of older adults' acceptability and perspective of the COVID-19 vaccinations and associated factors to develop appropriate educational and intervention nursing programs. The gerontological nurse has a leading role in assessing, educating, and implementing the safe vaccination of older adults. Regular evaluation and monitoring of trust levels are critical steps toward closing vaccine confidence gaps, with an emphasis on purposeful actions to enhance trust in vaccination programs.

Coronaviruses didn't just jump up lately. They're a tremendous gathering of contaminations that have been around for a long time. Scientists have isolated COVIDs into four sub-groupings, called alpha, beta, gamma, and delta. Seven of these diseases can defile people: 229E (alpha) ,NL63 (alpha) ,OC43 (beta) ,HKU1 (beta), MERS-CoV, a beta infection that causes Middle East respiratory condition (MERS) ,SARS-CoV, a beta infection that causes extreme intense respiratory condition (SARS) ,SARS-CoV-2, which causes COVID-19.(12)

In 1965, Researchers initially recognized a human Covid which caused a typical virus. . 8,000 individuals were contaminated by July 2003, and 774 passed on. A little flare-up in 2004 included just four additional cases. The Middle Easy respiratory syndrome (MERS) began in Saudi Arabia in 2012. Practically, almost 2,500 cases were reported in individuals who lived in or traveled to the Middle East. This Covid is less irresistible than its Severe acute respiratory syndrome (SARS) cousin yet more risky, butchering 858 individuals.

A significant number of patients began developing a mysterious pneumonia in December 2019 and the illness quickly spread throughout Wuhan, China, a city in the Hubei province. This

mysterious pneumonia was later identified as the acute respiratory asperge coronavirus 2 (SARS-CoV-2), and the overall illness was given the name Covid disease 2019 (COVID-19), which was defined as a different type of coronavirus.

COVID-19, immediately tainted huge number of individuals throughout the following weeks. . The outbreak was declared a worldwide epidemic by the World Health Organization (WHO) in March 2020, the first since 2009. As of March 09, 2021, 117,206,915 affirmed cases and 2,601,409 passing have been accounted for all around the world. Among them, 593,453 affirmed cases were from Pakistan; besides, 13,281 cases had kicked the bucket (3). Patients with COVID-19 experience gentle to extreme respiratory disease with clinical indications like fever, cough, weariness, shortness of breath, migraine, loose bowels, nausea and vomiting, have been accounted for during the emergency clinic stay. It is feasible to have COVID-19 without showing manifestations. (2) Despite the fact that no age-bunch is shielded from the SARS-CoV-2 disease, the weight is totally higher and generally extreme among people matured 70 years and over, with a notable death paces of over 20% among octogenarians.

Since SARS-CoV2 is a newly emerging illness, no effective antiviral therapy has been identified. Patients who have the SARS-CoV2 virus are treated in private rooms. Indicative therapy is the cornerstone of COVID-19 treatment. In an effort to reduce viral burden, antiviral drugs such oseltamivir, rituximab, ganciclovir, supports the following, and entecavir have been used. A patient with COVID-19 was treated with Remdesivir in the US and Arbid'll in China. (8)

Many potential COVID-19 antibodies are being developed by scientists throughout the world. The Pfizer COVID-19 vaccination received an Exceptional Use Listing (EUL) from the United Nations on December 31, 2020. (BNT162b2). Two vaccination types given by

AstraZeneca-SKBio (Republic of Korea) and the Serum Institute of India were noted for Who's usage in a crisis on February 15, 2021.

The drawn out wellbeing results of COVID-19 remain generally vague. The point of this examination was to depict the prolonged health results of patients with COVID-19 who have been released from clinic and explore the related danger factors, specifically sickness seriousness. The investigations revealed that patients with COVID-19 released from emergency clinics may have persistent indications. The goal of this study was to figure out how prevalent the COVID 19 vaccination is.

Literature review

CoVs are RNA diseases that can be discovered in a wide range of animal species. In humans, they have been linked to disorders of the respiratory, hepatic, neurological, and gastrointestinal systems. The presence of envelope spike glycoproteins gives them a crown-like look under the electronic microscope. The Roniviridae, Arteriviridae, and Coronaviridae families all contain CoVs. The Coronaviridae family is made up of the general Alpha-COV, β –, omega, and sigma. Additionally, beta-COV may be divided into five separate lineages. Bats and rodents are the origins of the genes for alpha-COV and beta-COV, according to gene characterisation (Fehr, Perlman, Maier, Bickerton, & Britton, 2015). However, it is believed that avian species are where delta-COV and gamma-biological COV's ancestors originated (chenY, 2020). Acute respiratory infections are caused by CoVs in 5-10% of cases. It is estimated that 2% of the population is infected with these viruses and is healthy. Some of the most frequent human CoVs include HCoVOC43, HCoV-NL63, HCoV-HKU1, and HCoV-229E. In immunocompetent adults, these CoVs produce self-restricting respiratory diseases and common colds. They can affect the lower respiratory systems in the elderly and debilitated, especially if they are

immunocompromised. Examples of human CoVs that include pulmonary and extrapulmonary symptoms include SARS-CoV-2, MERSCoV, and SARS-CoV (Fuk-Woo, 2013).

SARS-CoV-2 is a beta-COV infection that caused the COVID-19 epidemic. The unique strain shows a seventy % sequence resemblance to the bat SARS-like CoVZXC21, according to genomic characterisation investigations. Additionally, there is an 82 percent nucleotide match with the human SARS virus. As a result of these results, the new strain will be known as SARS-CoV-2. A total of 29,891 to 29,903 molecules make up its genome. The virus is harmful to both heat and UV radiation. With the aid of the lung-activated insulin - like growth factor enzyme 2 (ACE2), SARS-CoV-2 connects to its target cells. Furthermore, disinfectants that comprise chlorine, ether (75%) and ethanol can functionally inactivate these viruses (sixty percent).

Transmission

Direct contact with infected animals at a seafood market in Wuhan, China, was thought to be the source of the first cases (animal-to-human transmission). Clinical cases with a wide range of exposure histories have emerged, however. This clarifies the fact that the virus can be transmitted from person to person. As a result, human-to-human transmission is currently the most common mode of transmission. Asymptomatic people can also pass the pathogen on to others. Symptomatic persons, on the other hand, are the most common source of infection. Coughing or sneezing spreads respiratory droplets, which leads to transmission. According to the statistics, regular interaction between individuals can lead to transmission. This also suggests that increased aerosol concentrations could cause transmission in enclosed places. The fundamental reproduction number of SARS-CoV-2 is 2.2.This means that a patient can spread the virus to up to two additional people. According to current research, the virus has a three-to-seven-day

incubation period. These conclusions are based on preliminary cases. More research is required to fully comprehend the transmission of the dynamics and incubation durations thereby.

From asymptomatic patients to septic shock and multiorgan failure, COVID-19 generates a diverse spectrum of symptoms. The virus is classified according to the symptom intensity. Critical, severe, moderate, and mild are the four categories the disease is divided into. The most prevalent symptoms among patients include dry cough, diarrhea, fatigue (69.7%) and fever (98.6%).

Mild Illness

In patients with moderate disease, indications of a respiratory system virus infection may be evident. Some of the symptoms include a little temperature, a dry cough, migraine, nasal congestion, muscle discomfort, sore throat, and lethargy. It's also distinguished by the lack of significant symptoms like dyspnea. Most COVID-19 cases (81%) are of minor severity. In addition, radiograph characteristics are missing in such circumstances.

Common respiratory symptoms in these patients include moderate illness cough, tachypnea, and breathing issues,. However, there are no warning indications or symptoms of a serious illness.

Serious ailment

"Septic shock, acute respiratory distress (ARDS), and sepsis are prevalent severe illnesses in people. The diagnosis is made clinically, and complications can be ruled out via radiographic studies. Patients may develop severe dyspnea, tachypnea (breathing rate more than 30/minute), pulmonary edema, SpO2 of 93%, PaO2/FiO2 of 300, and/or more than 50% lung infiltrates within 24 to 48 hours. Including in extreme situations of the illness, a small or nonexistent fever

is still possible. In 5% of people, a significant disease with symptoms of respiratory arrest, RNAaemia, cardiac harm, blood poisoning, or numerous organ damage may appear. 49 percent of critical patients die, based on the Chinese Centers for Disease and Protection (CDC). Pre-existing condition patients 2019 (Huang & Wang).

Diagnosis

A criterion has been established by the Centers for Disease Control and Prevention (CDC) in US, for those who are being investigated (PUI) [4]. Infection prevention and control measures are put in place right away when an individual is identified as a PUI. The need for testing is determined by epidemiological considerations. One of these considerations is the direct interaction with a laboratory-confirmed individual within the first fourteen days. Samples must be taken from both the upper and lower respiratory systems as recommended by the World Health Organization. This may be the case. Alternatives include bronchoalveolar lavage, endotracheal aspirates, or expectorated sputum [4]. These are some examples. The presence of viral RNA is then determined using a polymerase chain reaction (PCR). It is possible to obtain a positive test result. The test for reassurance is advised to be repeated.

A suspect case is someone who has a fever, sore throat, or cough and has travelled to China or other areas where COVID-19 is persistently transmitted locally, or who has had contact with patients who have travelled to China or other areas where COVID-19 is persistently transmitted locally, or who has affirmed COVID-19 disease. However, some cases are asymptomatic or even without a temperature. A suspect case with a positive molecular test is called a confirmed case.

To make a specific diagnosis, specialized molecular assays on respiratory samples (nasopharyngeal swabs, throat swabs, endotracheal aspirates, bronchoalveolar lavage, and

sputum) are utilized. Additionally, viruses can be discovered in the blood and, under the most severe circumstances, the feces. It's important to note that none of the current multiplex PCR panels include the COVID-19. There are no commercial tests accessible right now. The required sample must be sent to the National Institute of Virology in Pune or one of the nation's approved reference laboratories in the event of a suspicious case in India. The availability of commercial testing will increase as the disease spreads.

Many times, non-specific laboratory tests are used instead. The white cell population is often normal or low. A neutrophil count of fewer than 1000 has already been associated with significant illness, therefore there may be lymphopenia. The blood count is often ordinary or moderately reduced. Procalcitonin levels are often normal, although CRP and ESR readings are typically high. Procalcitonin levels that are high may be a sign of bacterial co-infection. Severe sickness is linked to higher levels of ALT/AST, mean corpuscular, ammonia, D-dimer, CPK, and LDH.

The chest X-ray (CXR) may show bilateral infiltrates in the early stages of the illness, although it may also be normal. The CT scan offers greater accuracy and sensitivity. On CT imaging, infiltrates, surface opacities, and anti - anti accumulation are frequently seen. Additionally, it is abnormal in individuals with lower respiratory tract illness who are silent or have no clinical symptoms. In actuality, incorrect CT scans have been utilized in ambiguous cases with negative genetic characterization to pinpoint the virus; the vast majority of these patients had positive molecular testing on numerous evaluations.

Differential Diagnosis

The differential diagnosis includes all respiratory viral diseases (respiratory syncytial virus (RSV), influenza, adenovirus, parainfluenza, non-COVID-19 coronavirus, human

metapneumovirus), bacterial infections, and atypical organisms (mycoplasma, chlamydia). Clinically or with conventional lab tests, COVID-19 cannot be distinguished from these disorders. As a result, the importance of travel history increases. The travel history, on the other hand, will become meaningless as the illness spreads.

Management

The most successful method of the containment of the virus is quarantine. There is presently no specific antiviral medicine or vaccination available [4]. COVID-19 is therefore treated with symptomatic treatment and oxygen therapy. People with minor symptoms should be treated as soon as possible. This may be the case. To achieve this antimicrobial treatment, oxygen treatment, nutritional supplements, acetaminophen, external cooling, and other methods were used [9]. Extracorporeal membrane oxygenation is required for critically unwell individuals. The management of systemic diseases. The use of corticosteroids to treat ARDS is not advised. . Antibiotics should not be used if they are not absolutely necessary. In patients who have refractory hypoxemia while receiving protective breathing, ECMO should be explored [4]. Patients with respiratory failure may require mechanical ventilation, high-flow nasal oxygen, non-invasive ventilation, or intubation. Septic shock treatment necessitates Vasopressors are used to help with hemodynamic support. Support for organ function is required for multiple organ dysfunction patients.

Treatment

Supportive and symptomatic care is the mainstay of treatment. The first step in preventing transference to other individuals, patients, and healthcare personnel is to ensure proper isolation. Mild illnesses should be treated at home with education on warning signs. Maintaining water and nourishment, as well as controlling fever and cough, are common themes.

Antibiotics and antivirals, oseltamivir, for instance, should not be given frequently in confirmed cases. In hypoxic patients, oxygen should be delivered by face masks, nasal prongs, non-invasive breathing, or high flow nasal cannula (HFNC). Extracorporeal membrane oxygen support, as well as mechanical breathing, may be required. In some cases, renal replacement treatment may be needed.

If co-infections are hypothesized or proven, antifungals and penicillin are required. " Chinese recommendations do propose short-term treatment with low-to-moderate dosage corticosteroids in COVID-19 ARDS, despite the fact that the WHO and current global consensus advise against the use of steroids [24, 25]. The World Health Organization (WHO) has published comprehensive COVID-19 critical care therapy recommendations. Currently, there is no authorized medication for COVID-19. Antiviral drugs like rituximab and lopinavir ritonavir have been used in response to SARS and MERS experiences. In a retrospective randomized trial of SARS patients, those given lopinavir-ritonavir together with ribavirin fared better than those given ribavirin alone.

In a case series of 99 seriously injured COVID-19 caregivers from Wuhan, 76% of them received oxygen, 13% received nonsurgical ventilation, 4% received mechanical ventilation, 3% received extracorporeal membrane oxygenation (ECMO), 9% received continuous renal replacement therapies (CRRT), 71% received antibiotics, 15% received antifungals, glucocorticoids, and 27% received intravenous immunoglobulin therapy [15]. % Of the patients were given antiviral drugs such lopinavir ritonavir, ganciclovir, and oseltamivir. In contrast to mechanical ventilation, which lasted 3–20 days (median 17 days), quasi airflow lasted 4–22 days (median 9 days). The youngsters in the case reports described earlier all made full recoveries after receiving quite minimal care.

Rameswar, a wide-ranging anti-RNA drug created for Ebola, may be effective in treating COVID-19, according to anecdotal evidence [27]. More research is required before these drugs are recommended. Treatment options have also included intravenous immunoglobulin, eicosanoids, doxycycline, and hemoglobin from COVID-19 patients [21, 28, 29]. Arbidol, an antiviral drug accessible in China and Russia, has also been recommended. The Chinese laws also specify how to utilize conventional Chinese herbs.

Prevention

Infection prevention techniques, patient isolation, and self-isolation must all be maximized while providing clinical care. The WHO forbids close contact with patients, agricultural animals, and wild animals. Coughs and sneezes must be covered by patients and the general public prevent the spread of aerosols Hand washing with soap and water is also essential on a regular basis. As a substitute Hand sanitizers can also be used as a measure. Individuals with impaired immune systems should avoid going out in public gatherings. For the control of infectious diseases, emergency medical departments must use strong cleanliness procedures infections. Wearing personal protective equipment, such as N95 and FFP3 masks, is required for healthcare workers. It is imperative to use shields, gowns, and eye protection.

Since there is presently no proven medical treatment for this illness, prevention is absolutely essential. Transmission from asymptomatic people, tropism for mucosal surfaces such as the conjunctiva, non-specific illness symptoms, transmission even after clinical recovery, prolonged illness duration, infection even before the traits are noticed during the incubation phase, and prolonged incubation phase are all indications that make preventions complex.

Suspected or confirmed instances of moderate illness should be isolated at home, according to experts. To enable for viral eradication, proper ventilation and sunlight should be

provided at home. Cough hygiene and the use of a basic surgical mask should be required of all patients. When in the same room as the patient, caregivers should wear a surgical mask and wash their hands every 15–20 minutes.

The spread of COVID-19 to healthcare personnel poses the greatest danger. Healthcare professionals made for 21% of those infected by the SARS pandemic in 2002. I Around 1500 healthcare workers in China have been affected, with six deaths, including the doctor who raised the alarm about the COVID-19 disease. To preserve continuity of care and avoid infection transmission to other patients, it is critical to protect healthcare staff. The China National Health Commission recommends infection prevention techniques for Category A agents (cholera, plague), contrary to the fact that the virus is a Category B (highly dangerous H5N1 and SARS). People inflicted with the COVID-19 virus should be separated into rooms or groups. Negative pressure chambers are rarely required. Rooms, surfaces, and equipment should be decontaminated on a regular basis, ideally with sodium hypochlorite. N95 respirators, safety suits, and goggles should be provided to healthcare personnel who have been fit tested. Airborne transmission precautions should be considered during aerosol-generating procedures such as suction, tracheostomies, and intubation. The development of COVID-19 symptoms should be followed in all contacts, including healthcare staff. After three days of afebrile status and two successive negative molecular tests at one-day intervals, patients can be released from isolation. Individuals should return to their jobs or schools once afebrile for twenty-four hours or by day seven of sickness, according to the pandemic flu recommendation. Negative molecular tests were not required to be released.

People should be encouraged to avoid congested locations and delay non-essential travel to areas where community-level transmission is still active. They should be encouraged to cough

into a sleeve or tissue rather than their hands, and to wash their hands every 15–20 minutes. Surgical masks should be required for patients with respiratory complaints. "It has not been established that the wearing of a mask when in public by healthy individuals provides protection versus respiratory malware attacks, and the United Nations does not now advocate it. But in China, everyone must wear a mask in public, especially in crowded locations, and huge gatherings are forbidden (entertainment parks etc.). The sale and trading of wild animals would be prohibited by laws that China is now developing.

There has been a tremendous amount of support from throughout the world. Regardless if they are asymptomatic, those returning from China or being evacuated from China are separated, evaluated for clinical symptoms, and diagnosed for COVID-19 for 2 weeks. Equivalent border controls have now been added to additional nations due to the virus's quick worldwide spread. It's uncertain if these actions will slow the spread of the virus. A possible vaccine is being developed.

Origin and Spread of COVID-19

In December 2019, individuals in Wuhan, the provincial capital of Hubei and a major major port in Chinese, started presenting to the nearby hospitals with serious infections of unknown cause. Many of the early instances included the Huanan wholesale fish market, which also handled in live animals. Individuals' respiratory samples were collected, and the surveillance system—which was put in place during the SARS outbreak—was activated. For etiologic investigations, they were forwarded to reference labs. On China alerted the United States of the outbreak on December 31st, 2019? On January 1st, the World Health Organization and the Huanan Province of China signed a Memorandum of Understanding. The fish market was shut down. The virus was discovered on January 7th. It was discovered to be a corona virus with

>95% similarity to other corona viruses {China's, 2020 #353}. The SARSCoV virus resembles the animal plasma virus by 70%. Environmental samples from cases that had risen sharply in number, some of which had not been subjected to the live animal sector, suggested that human-to-human spread was occurring. A fatal case was reported for the first time on January 11th, 2020. The massive influx of Chinese people over the Chinese New Year served as a catalyst for the epidemic (Huang, 2020 #354). People from Wuhan who returned reported incidents in other Chinese provinces and abroad (Thailand, Japan, and South Korea in fast succession). Transmission to medical personnel caring for individuals was stated on January 20, 2020. By the 23rd of January, Wuhan's 11 million residents had been placed under lockdown, with entry and exit restrictions in effect. This curfew was quickly expanded to other cities in Hubei province {Jan, 2020 #355}. Screening devices have been installed at airports around the world, including India, to detect symptomatic patients returning from China and place them in isolation while they are tested for COVID-19. It was quickly discovered that the illness may be passed from asymptomatic to symptomatic patients and even before symptoms appeared." As a result, countries like India, which transferred its nationals from Wuhan via special aircraft or had passengers evacuated, detained all those who were asymptomatic or otherwise sick in isolation for 14 days after returning from China and examined for the disease (Bai, 2020 #356).

Post-COVID Symptoms

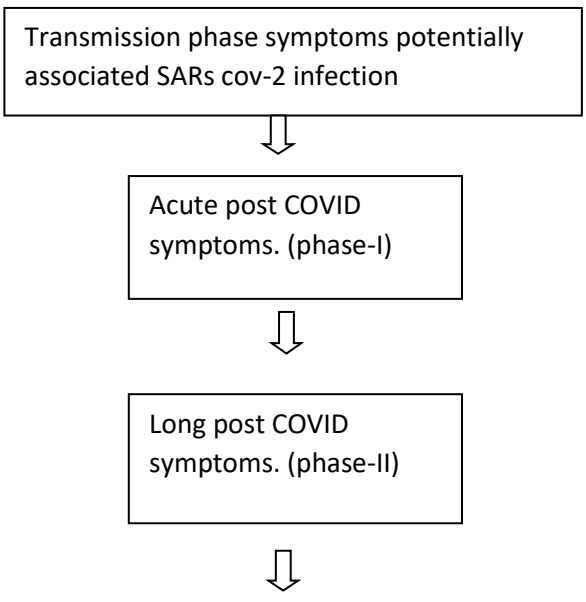
On the basis of the aforementioned factors, a diagnosis for post-COVID symptoms was proposed (pending confirmation in prospective studies). This diagnosis should be considered an ongoing and complex process involving psychological, social, and biological factors that may contribute to or exacerbate the emergence of post-COVID symptoms. "If a person needs to be admitted to the hospital, this diagnosis is also affected.

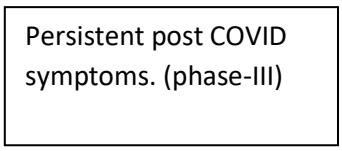
Transition Phase: Acute COVID-19 symptoms that may be related: symptoms lasting up to four to five weeks; B. Phase 1: Acute post-COVID difficulties: ailments lasting from five to twelve weeks.

Phase 2: Prolonged post-COVID symptoms: 12 to 24 week period.

Phase 3: Post-COVID symptoms that have persisted for more than 24 weeks.

As can be seen, before being labeled as post-COVID symptoms, symptoms in the transition period should be treated with caution as "maybe" connected to the SARS-CoV-2 infection. Prior to making the diagnosis, it is important to rule out any potential hospital-related squeals (such as extended sleeping, transfusion gone wrong, short - term disability polyneuropathies, etc.) in order to increase the specificity of the categorisation of post-COVID symptoms. We advise a "wash out" period following hospitalization (4-5 weeks after release) in order to more accurately define the acute post-COVID complaints that are actually related. The length of this phase is determined by the length of hospitalization (days, weeks, or months) as well as the "wash out" period.





Method

The research is basically based on observing the symptoms of covid and post covid in patients who perform PCR tests at a hospital. For that purpose the methodology followed is based on data set, data analysis and results. First of all, the process of data set will be done. In this, the number of patients that will come to the hospital for PCR test, both male and female, will be noted. Furthermore, a questionnaire will be prepared, of the patients, which has variables listing patient name, age, date of discharge, pre and post covid symptoms. Moreover, ages of both the male and female patients will be noted and PCR test will be performed on each patient. If the PCR result shows positive (which means that a patient has covid), the patient will be quarantined. However, those patients whose PCR test will show negative, they will be discharged immediately. The patients to be taken in the data set will include both the genders, male and female.

The patients who will be quarantined, their symptoms will be noted during their quarantine period at the hospital. After completion of the quarantine time, again PCR test will be performed on the patients. If the test shows negative, post-covid symptoms will be observed in patients to check whether any of the symptoms has persisted in the patients or not. If the symptoms do persist, those symptoms will be listed and noted down in the patients that suffered from it.

Furthermore, data analysis will be done on the data that will be noted from the patients. In this, descriptive statistics will be performed. The descriptive statistics will include insights in which pre-covid and post-covid symptoms would have been noted and descriptive statistics will

be performed on it in order to evaluate the results. Lastly, the results will be taken out from the descriptive statistics and conclusion will be drawn from it.

Participants

The target population consisted of adults of both sexes who reside in the aforementioned circumstances, have a suitable way to communicate with researchers for data collection during the study, and provide consent to participate in this research.

A sample of participants will be targeted after estimating a percentage to compensate expected losses. According to the final population census findings, the sample will be distributed proportionally between rural and urban areas. Each health center will compile a list of adults who are qualified to participate in the study and their contact information from their family files. Subsequently, systematic random sampling technique will be used to select the total sample of participants.

Measures

An electronic questionnaire will be developed for data collection, which will be distributed to participants via publicly available online resources. In addition, participants will be called who were either illiterate or uninterested in online resources The questionnaire will have a cover page on which respondents will be told about the study's purpose, their right to withdrawal at any given time, and assurance of confidentiality. English language will be used throughout the questionnaire. Late on, it will be translated into Arabic language and revised by language specialists. It will be subjected to content validity testing by panels of professionals in the field, and any necessary changes will be made consequently.

Additionally, a trial sample will be carried out before the data collection to ensure that the survey items are clear and applicable. The pilot sample's data will not used in any subsequent

research.. Acceptance will be described in this survey as the action of accepting to acquire or undertake the COVID-19 vaccination once it becomes readily accessible. The question "will you receive the COVID-19 vaccination when it becomes available?" will be used to assess it. "Yes," "No," and "Not Sure" will be the responding options. This will be considered as the dependent variable in this study.

The questionnaire will be structured into four sections. Socio-demographic data will be age, sex, marital status, educational level, residence, income, and living arrangement. Health-related characteristics will be assessed by perceived health status, presence of co-morbidities, history of COVID-19, history of taking influenza vaccine, and followed preventive measures against COVID-19. Perceived health status will be measured by a widely used question, "how do you rate your current health?" and the respondents will rate their health on a scale of 1-5. (Idler and Angel, 1990). Poor and fair replies will be combined for analysis and classified as not-so-good. While the responses that will be very good and exceptional will be combined and rated as very good. The question "do you have adequate information on the COVID-19 vaccine?" will also be used to analyze information about the COVID-19 vaccination.

“Health beliefs will be developed based on the HBM framework to assess the participants' beliefs related to COVID-19 vaccination, similar to other previous studies (Wong et al., 2021; Shmueli, 2021). The following six crucial aspects of one's health beliefs will be assessed: perceived susceptibility (one's assessment of the likelihood of contracting COVID-19, quantified by two products), psychological consequences (one's assessment of the effects of having COVID-19, determined by two items), expected usefulness (one's assessment of the value of gaining COVID-19 vaccine, measured by five items), risk perceptions (one's assessment of the challenges to acquiring COVID-19 vaccine, measured by eight items), and cues to. Every

assertion option will be rated on a scale of 1 to 5, with 1 denoting "strongly disagree" and 5 denoting "strongly agree." The internal validity of HBM was determined by reliability to be Cronbach's alpha = 0.87. An 8-item instrument (Szczerbinska et al., 2017) will be used to examine attitudes regarding vaccination. It will assign positive and negative sentiments, with four items for each and five potential responses on a rating range from 1 to 5, with 5 denoting "strongly agree." For the positive attitude subscale, a high score would indicate a more positive attitude towards vaccination, but for the negative attitude subscale, a high score will indicate a more negative attitude towards vaccination. Reliability will be evaluated using the Cronbach alpha coefficient, which would indicate the reliability of the attitude towards vaccination scale"

Statistical analysis

The Statistical Package of Social Science (SPSS) version 20 will be used to analyze the data. Continuous data will be provided as means and standard deviations, whereas categorical variables will be presented as numbers and percentages. Depending on the features of the analyzed variables, univariate analysis will be conducted using either an independent t-test or a Chi-square test to identify the relationship between dependent and independent variables. The independent factors of COVID-19 vaccination acceptability will be investigated using multivariate logistic regression analysis. Only variables that strongly correlated with the adoption of the disease's vaccination (dependent variables) in the univariate analysis will be included in the regression as far as the independent variables are concerned. Three independent binary logistic regression models will be performed; (1) HBM and attitude towards vaccination will be excluded, (2) attitude towards vaccination will be excluded, and (3) HBM will be excluded. "P-values of less than 0.05 will be considered statistically significant."

Results

In terms of the number of replies that agreed with the health belief model assumptions, nearly half of the study participants believed that the likelihood of getting a COVID-19 infection would rise if they did not get vaccinated. Many people included in this study thought that the severity of the consequences of COVID-19 (long-term health complications or economic sequelae) is dangerous. The main benefit reported by the study participants vaccination reduces the fear of COVID-19 infection among individuals. Concerns regarding the covid-19 vaccine's untested efficacy, as well as probable adverse effects, were the most commonly mentioned hurdles. Numerous study participants stated that their desire to acquire the virus vaccination depends on recommendations from a reputable doctor, followed by the availability of sufficient news to verify vaccine safety and effectiveness. Also, a lot of them were confident of getting the vaccine when available (**Table 1**).

A link between the health belief models constructs and willingness to receive the vaccination was revealed by the univariate analysis. Participants who reported more agreement on perceived intensity, advantages, and action cues were more likely to receive the COVID-19 vaccination ($p \leq 0.05$). Meanwhile, those who disagreed with perceived barriers were more likely to receive the COVID-19 vaccination ($p \leq 0.05$). When it comes to vaccination acceptance, there was no connection between perceived vulnerability and self-efficacy ($p > 0.05$). In addition, individuals' attitudes regarding vaccination, in general, were linked to the adoption of the COVID-19 vaccination.

Findings

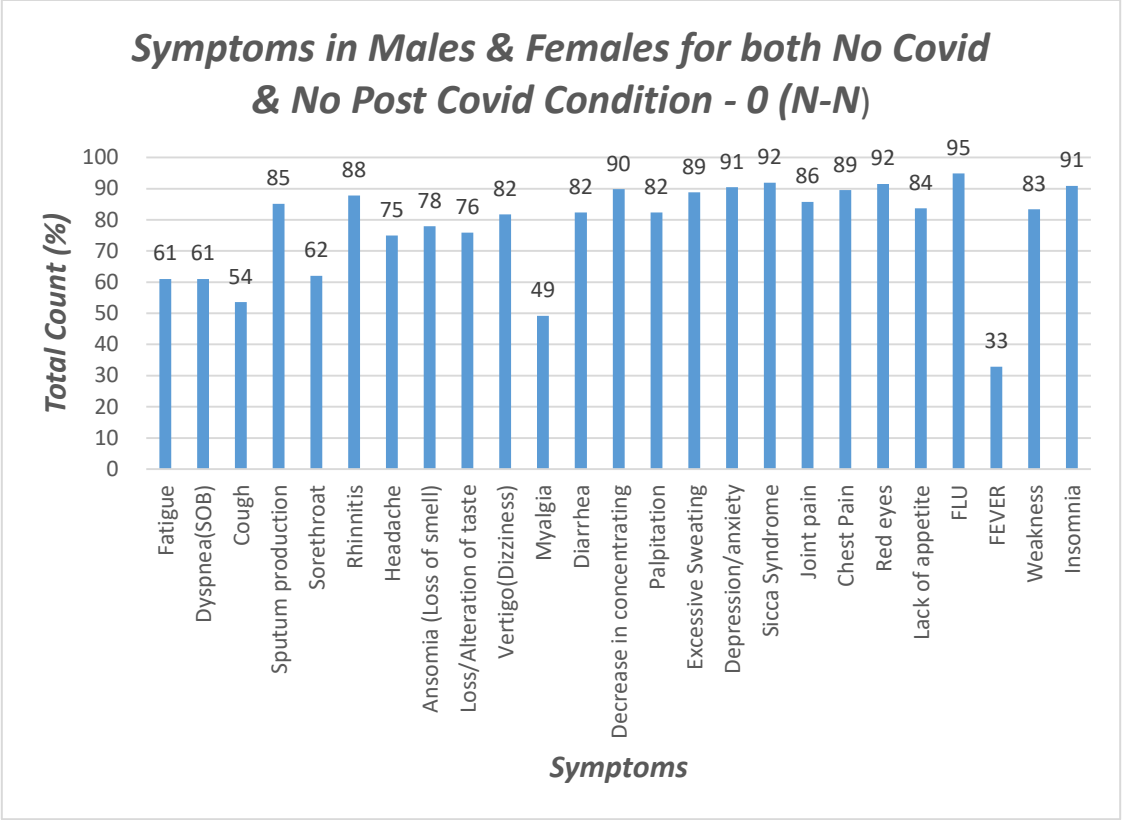


Figure 1: Symptoms in Males & Females for both No COVID & No post-COVID Condition

61% of the people who filled the survey, including both, men and women without getting infected by the disease, had the symptoms of fatigue and Dyspnea (SOB). Almost half of the people had symptoms of cough (54%) and Myalgia (49%) whereas around 33% of people had fever only. Approximately, 62 % of the respondents showed the indication of sore throat, whereas around 70% to 80% of people had headaches (75%), Ansomia (78%), and loss of taste (76%). More than 80% of the people showed the following symptoms: Sputum production (85%), Rhinitis (88%), Vertigo (82%), diarrhea (82%), palpitation (82%), excessive sweating (89%), joint pain (86%), chest pain (89%), lack of appetite (84%), and weakness (83%). The following symptoms were observed in more than (or equal to) 90% of the people: decrease in

concentration (90%), depression and anxiety (91%), Sica syndrome (92%), red eyes (92%), flu (95%) and insomnia (91%).

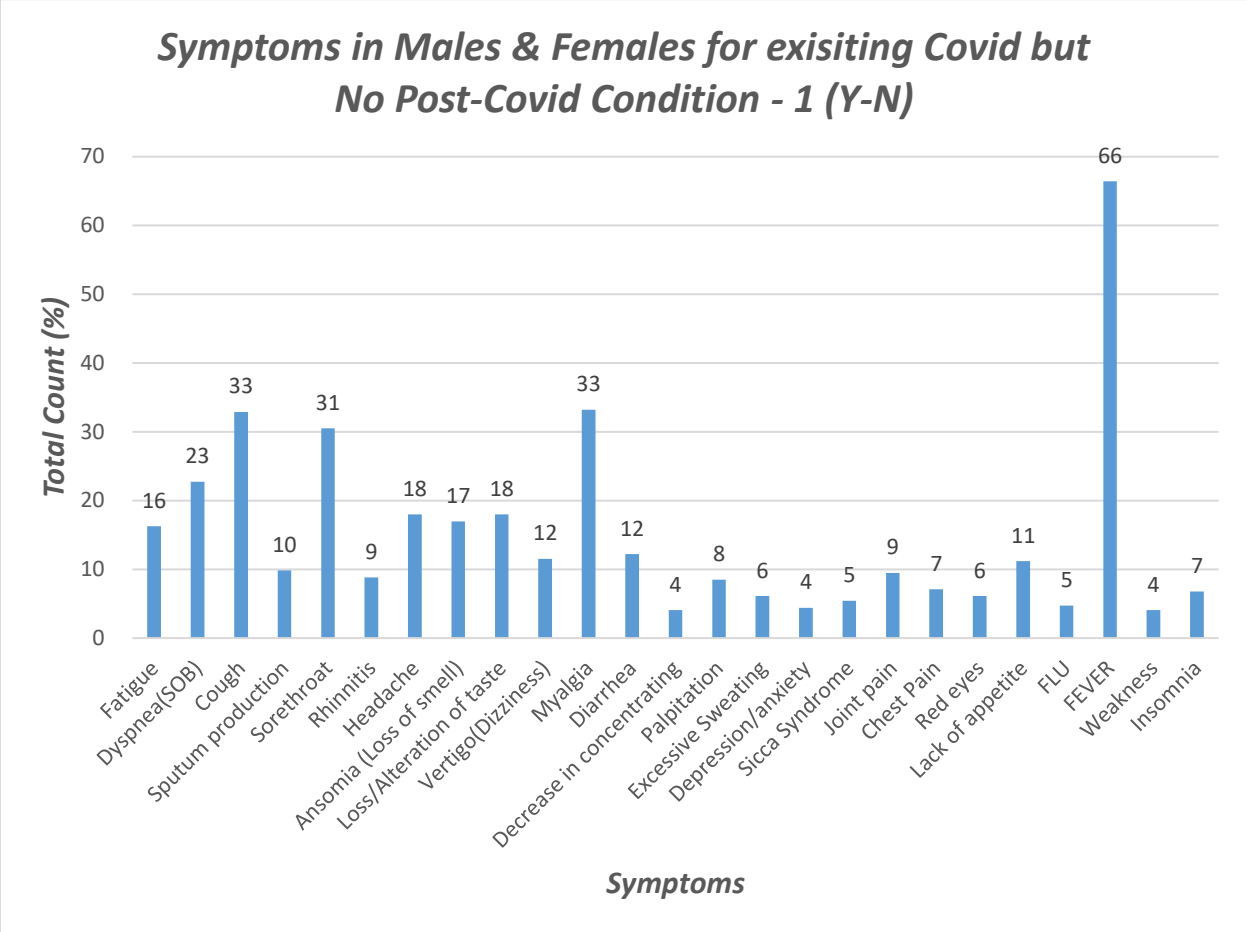


Figure 2: Symptoms in Males and Females for both No COVID and No Post-COVID Condition -1(N-Y)

Out of all the questionnaires filled by people of both genders for the COVID symptoms, with no post-COVID aftereffects, 66% of the people had a fever, 33% had a cough, and Myalgia and 31% had a sore throat. 23% of the people had Dyspnea, whereas only 10% to 20% of the people showed indications of fatigue (16%), headache (18%), Ansomia (17%), loss of taste (18%), Vertigo (dizziness) (12%), diarrhea (12%), and lack of appetite (11%). Less than 10% of the respondents had the following symptoms: Sputum production (10%), Rhinitis (9%), decrease in concentration (4%), palpitation (8%), excessive sweating (6%), depression and anxiety (4%),

Sica syndrome (5%), joint pain (9%), chest pain (7%), red eyes (6%), lack of appetite (11%), flu (5%), weakness (4%) and insomnia (7%).

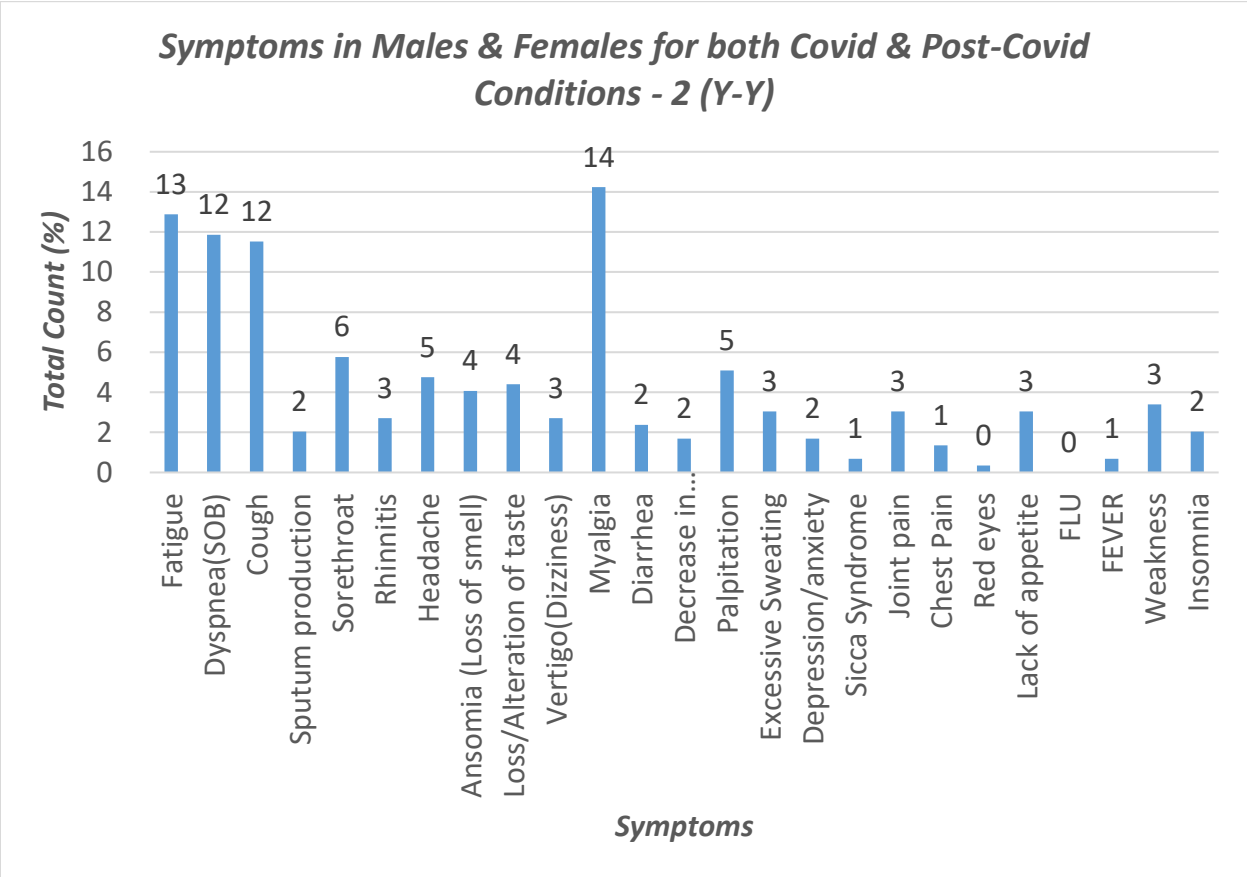


Figure 3: Symptoms in Males & Females for Both No COVID & No Post-COVID Condition -2(Y-Y)

14% of the respondents, who showed symptoms for both, COVID and post-COVID conditions, had Myalgia, 13% of them had fatigue issues meanwhile 12% had Dyspnea and cough. Less than 10% of the people showed the following, remaining symptoms: Sputum production (2%), sore throat (6%), Rhinitis (3%), headache (5%), Ansomia (4%), loss of taste (4%), Vertigo (3%), diarrhea (2%), decrease in concentration (2%), palpitation (5%), excessive sweating (3%), depression & anxiety (2%), Sica syndrome (1%), joint pain (3%), chest pain

(1%), lack of appetite (3%), fever (1%), weakness (3%) and insomnia (2%). Meanwhile, none of them any symptoms of red eyes and flue.

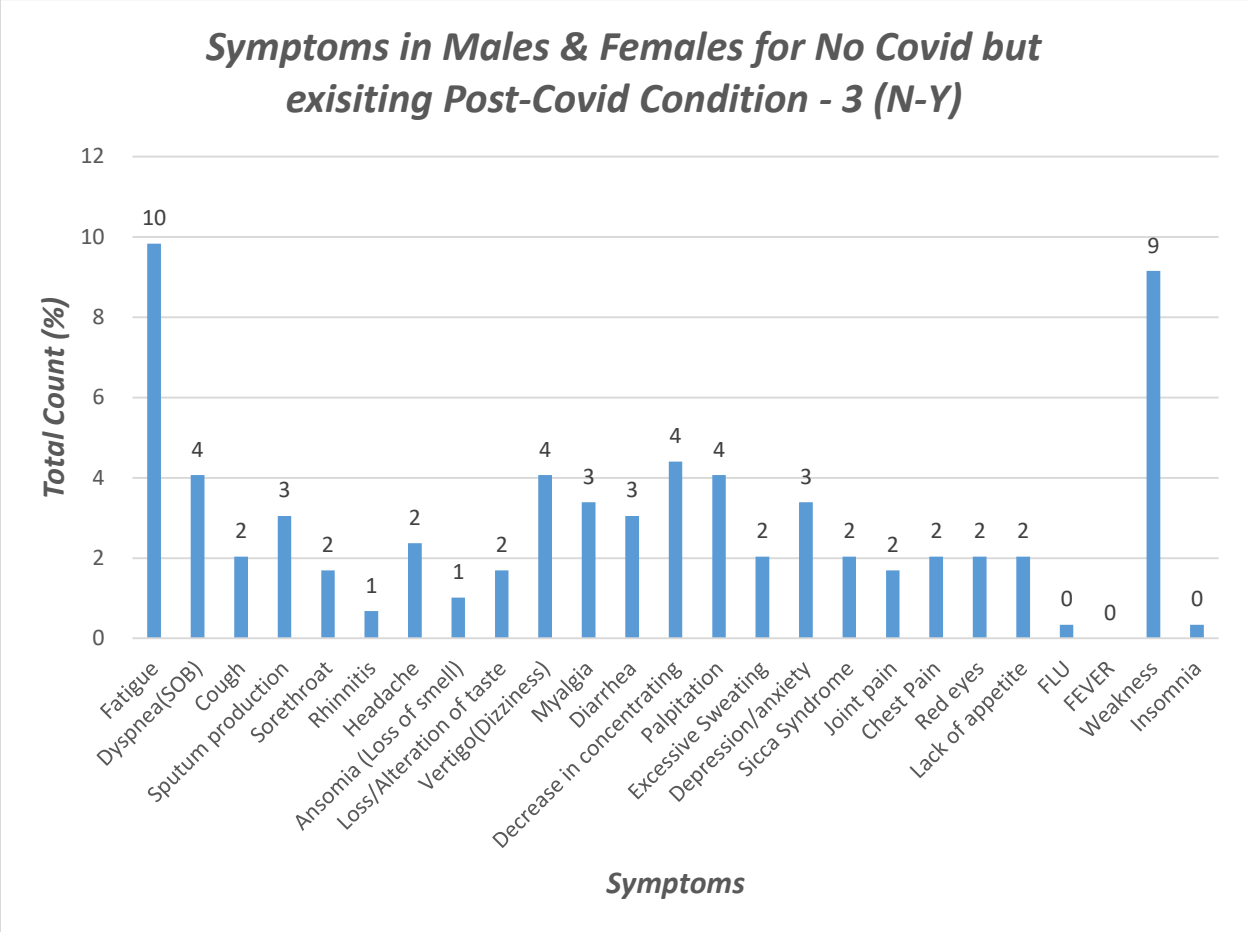


Figure 4: Symptoms in Males & Females for both No COVID & No Post-COVID Condition -3(N-Y)

According to the responses of the questionnaires filled by people who had no COVID and post-COVID conditions, 10% of the people showed symptoms of fatigue and 9% of the people had weakness. 4% of the people had the following symptoms: Dyspnea, Vertigo, decrease in concentration and palpitation. 3% of the respondents had indications of Sputum production, Myalgia, diarrhea, and depression and anxiety. 2% of the people showed a majority of symptoms including cough, sore throat, headache, loss of taste, excessive sweating, Sica syndrome, joint

pain (almost 2%), chest pain, red eyes and lack of appetite. Only 1% of the people had Rhinnitis, and Ansomia meanwhile none of the responses showed any symptoms of flue and insomnia.

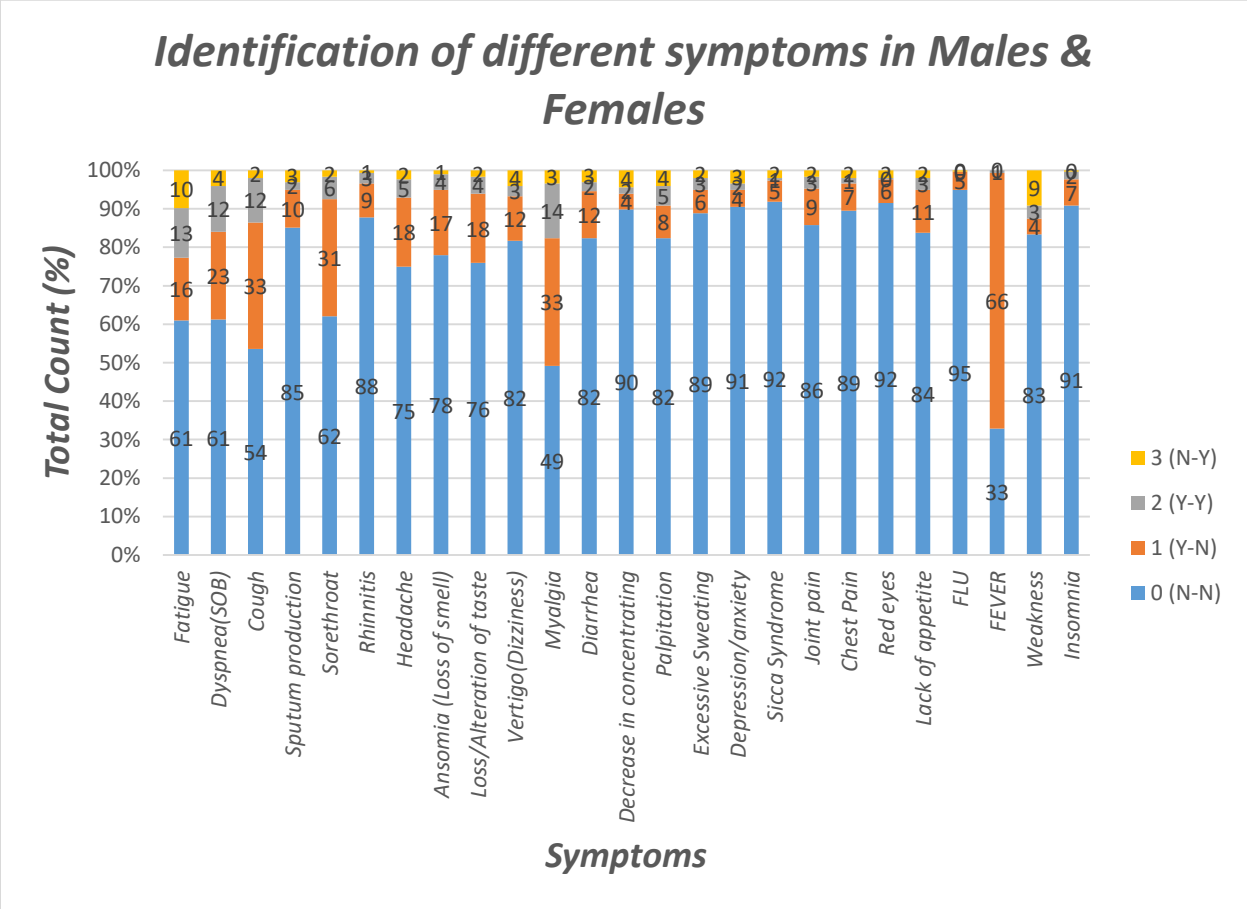


Figure 5: Identification of Different Symptoms in Male & Female

According to the survey, the following is the percentage of symptoms felt by people who had neither COVID nor any post-COVID conditions: fatigue and dyspnea (61%), cough (54%), sputum production (85%), sore throat (62%), rhinitis (88%), headache (75%), Ansomia (78%), loss of taste (76%), vertigo (82%), Myalgia (49%), diarrhea (82%), decrease in concentration (90%), palpitation (82%), excessive sweating (89%), depression and anxiety (91%), Sica

syndrome (92%), joint pain (86%), chest pain (89%), red eyes (92%), lack of appetite (84%), flu (95%), fever (33%), weakness (83%) and insomnia (91%).

Moreover, the percentage of symptoms felt by people who had COVID but no aftereffects were as follows: fatigue (16%), dyspnea (23%), cough (33%), sputum production (10%), sore throat (31%), rhinitis (9%), headache (18%), Ansomia (17%), loss of taste (18%), vertigo (12%), Myalgia (33%), diarrhea (12%), decrease in concentration (4%), palpitation (8%), excessive sweating (6%), depression and anxiety (4%), Sica syndrome (5%), joint pain (9%), chest pain (7%), red eyes (6%), lack of appetite (11%), flu (5%), fever (66%), weakness (4%) and insomnia (7%).

Furthermore, the percentage of people who had both, COVID and post-COVID effects showed the following indications: fatigue (13%), dyspnea (12%), cough (12%), sputum production (2%), sore throat (6%), rhinitis (3%), headache (5%), Ansomia (4%), loss of taste (4%), vertigo (3%), Myalgia (14%), diarrhea (2%), decrease in concentration (2%), palpitation (5%), excessive sweating (3%), depression and anxiety (2%), Sica syndrome (4%), joint pain (3%), chest pain (4%), red eyes (0%), lack of appetite (3%), flu (0%), fever (1%), weakness (3%) and insomnia (2%).

Lastly, the number of people who were not affected by COVID, yet showed post-COVID symptoms were as follows: fatigue (9%), dyspnea (4%), cough (2%), sputum production (3%), sore throat (2%), rhinitis (1%), headache (2%), Ansomia (1%), loss of taste (2%), vertigo (4%), Myalgia (3%), diarrhea (3%), decrease in concentration (4%), palpitation (4%), excessive sweating (2%), depression and anxiety (3%), Sica syndrome (2%), joint pain (2%), chest pain

(2%), red eyes (2%), lack of appetite (2%), flu (0%), fever (0%), weakness (9%) and insomnia (0%).

Discussion

A probable single health system interpretative cohort study examining thread outcomes of patients requiring hospitalization with severe COVID-19 found that participants' health status was substantially better than the US mean and that they had no breathing problems prior to being admitted because of the virus. However, after being released from the medical health center for more than a month, only a few individuals felt continued difficulty in breathing. Breathing issues that occurred before COVID-19 became more intense, frequent, and prolonged after COVID-19. Furthermore, even a month after being released from the hospital, it was determined that both physiological and cognitive health were worse than baseline.

One study indicated that non-hospitalized people with mild sickness had not returned to their normal level of health following treatment. Specific patients with COVID-19 effects have been featured in the media for multiple weeks. According to our research, the majority of people with severe COVID-19 sickness require a lengthy recovery period. The World Health Organization forecasts that the median time from the beginning of the disease to recuperation for severe COVID-19 is around 3-6 weeks based on initial data from China.

However, after weeks following the onset of disease, majority of our patients had chronic dyspnea. Recent research from Italy, which looked at post-discharge outcomes, found that 43% patients had persistent dyspnea two months following symptom start. By design, our cohort was more likely than the Italian cohort to have had critical care or mechanical ventilation, which may explain the higher prevalence of persistent dyspnea in our study.

Due to the high frequency of stays in critical care units and lengthy hospital stays associated with these cases, these individuals are at risk for developing thread care syndrome 23, 24, and post-hospital syndrome [25]. Due to sometimes drastic changes in lifestyle and work capacity (most notably enduring shortness of breath), this has serious ramifications for the ability to return to work as well as upstream effects on cognitive health and the capacity to engage in operations or passions that were appreciated prior to COVID-19 illness.

Although pulmonary function can rebound, particularly for younger individuals, previous studies on thread consequences in acute cardiopulmonary disruption condition (ARDS) has revealed that many clients still have a poor bodily performance of life 5 years afterwards [26-28]. Similar sluggish early recovery and a sizable number of subjects with long-term symptoms were discovered in a comprehensive evaluation and conceptual of critical illness victims (with and without ARDS) [29]. Another study that looked at long-term prognosis in influenza A (H7N9) victims discovered that while quality of life deterioration persisted even two years after discharge from the hospital, pulmonary function and imaging results improved within the first six months.

The long-term effects of COVID-19 survivors' stated symptoms are unknown at this time; however, these preliminary findings are concerning. In addition, we found severe psychological suffering among study participants, with nearly 20% of them living alone. These results suggest that post-discharge therapy may be necessary to hasten recovery. [31] In order to assist these persons through the post-discharge transition, interventions like community health aide care should be implemented. Shortness of breath might make it difficult to do daily tasks. Interventions for preventing and addressing post-intensive therapy and post-hospital syndrome

are also looked at. Pulmonary rehabilitation and other pulmonary-specific therapies should be investigated.

Vaccination is regarded as a critical component in combating the spread of COVID-19. Vaccine acceptance, on the other hand, varies depending on several factors. Therefore, a study was conducted in Egypt among 384 older adults to assess the proportion of acceptance of the COVID-19 vaccine and the factors influencing its acceptance. In Egypt, this is the first study that provides results in this respect among older adults. Egypt ranks among the moderate countries in global studies on public acceptance and willingness to receive the COVID-19 vaccine. The percentages of individuals replying "yes," "no," and "not sure" about their acceptance of the COVID-19 vaccine were 46.9%, 19.5%, and 33.6%, respectively, among 384 adults aged 60 and above. These findings are in line with those of a telephone study conducted in Hong Kong among adults aged 18 and older, the majority of whom (68.6%) were under the age of 55, which found that 46.3% of interviewees in this age range were eager to get the COVID-19 vaccination (Wong et al., 2021). Similar results were found in a Saudi Arabian online poll, where the general population's acceptance rate was 44.7% and 37% of 273 participants over 60 claimed they intended to receive the COVID-19 vaccine (Magadmi and Kamel, 2021). Additionally, among 50% of the research's elderly participants, a Russian study discovered indications of a modest vaccination acceptance rate (Tran et al., 2021). The western Uganda poll had similar results, showing that 42% of people aged 61 to 70 years were more inclined to receive the vaccination (Echoru et al., 2020). Despite having a lower acceptance rate than France, 30,5% of those surveyed stated they would definitely or already had accepted the COVID-19 vaccination (Guillon and Kergall, 2021). In addition, a Portuguese community poll indicated that 35.3% of respondents said they would get the vaccination as soon as permitted (Soares et al., 2021). Our

results were much worse than the enrolments in Israel, where 93% of senior subjects and 80% of the broader public reported accepting the COVID-19 vaccination (Shmueli, 2021). A high reaction rate of 91.3% was also reported for China (Wang et al., 2020). In addition, a worldwide poll based on a sample of many nations revealed that the COVID-19 vaccine's acceptability around the globe varied from 54.9% in Moscow to 88.6% in Beijing (Lazarus et al., 2020). According to a survey conducted in the USA, 70.6% of participants planned to receive the coronavirus vaccination (Berg and Lin, 2021). In the same vein, Australia (86%) and Saudi Arabia (64,7%) both recorded excellent response rates (Dodd et al., 2020; Al-Mohaithef and Padhi, 2020). Concerns regarding the vaccine's as yet unproven safety and effectiveness, which are voiced by a substantial fraction of research participants, may be one reason why the country has a lower acceptance rate than other nations.

The current study evaluated a number of indicators, including sociodemographic and health-related variables, that may affect how well the COVID-19 vaccination is received. In terms of sociodemographic traits, we discovered that older people were substantially more willing to receive the COVID-19 vaccination. Also, age was considered as an independent predictor that influenced vaccine acceptance. This assumption is by other studies in Israel and Hong Kong, which found higher rates of vaccination intention among older participants (93% and 48.2%, respectively) (Shmueli, 2021; Wong et al., 2021). Also, a global survey revealed that older people were more likely to report that they would get the vaccine (Lazarus et al., 2020). It is understandable that senior citizens have a higher acceptance of the COVID-19 vaccine because they are at a higher risk of contracting and becoming infected with COVID-19 in general. This might also account for our findings, since the COVID-19 vaccination was more likely to be accepted by those with chronic health issues and a poor opinion of their health. This

finding confirms the existing recommendations that older adults with chronic health issues are the highest priority category to get the COVID-19 immunization (CDC, 2021). Additional research from Saudi Arabia, France, Israel, and Hong Kong supports this (Mahmud et al., 2021; Guillon; Kergall, 2021; Shmueli, 2021; Wong et al., 2021).

As older guys were more acceptable of the COVID-19 vaccine than older females, male gender was another favorable main determinant for vaccination acceptability. Similar to this, a European poll on women's willingness to get the COVID-19 vaccine indicated reluctance among women across all age categories (Neumann-Bohme et al., 2020). Additionally, this concurs with other earlier studies (Ahmed et al., 2021; Berg and Lin, 2021; Shmueli, 2021; Nomura et al., 2021; Chen et al., 2021). This conclusion might be explained by the fact that women are more prone to voice concerns about the safety and adverse effects of the vaccination. The documented significant levels of COVID-19 suffering and death in infected male patients may also be a contributing factor. In contrast, a different study revealed that males were less likely than women to receive the vaccination (Lazarus et al., 2020). In this study, the education level of the participants was important for understanding vaccination uptake since older adults with a great level of knowledge (secondary and above) were just more receptive to the COVID-19 vaccine. This result is consistent with earlier research. Fisher et al., 2020; Shmueli, 2021; Nomura et al., 2021; Marzo et al., 2021). Given that only a small percentage of participants reported having enough knowledge about the COVID-19 vaccination, this might be justified by the fact that individuals with higher levels of education may have better access to information regarding COVID-19 vaccines. This emphasized the significance of developing educational campaigns to raise knowledge of the COVID-19 vaccination, especially among those who are illiterate or have poor levels of education. Additionally, this study found that the living situation is a separate

predictor that influences the acceptance rate, with elders who live with their family being more eager to take the vaccination than elders who live alone. Similar findings were reported in other studies (Al-Mohaithef and Padhi, 2020; Lin et al., 2020). It's likely that family members, close friends, and partners have an impact on older persons' vaccination rates by giving advice, making suggestions, or sharing their own personal experiences. Social media platforms also support the choice to be vaccinated. Regarding the health-related aspects of the COVID-19 vaccine's approval. It was intriguing to validate the beneficial effects of the seasonal influenza vaccine since respondents who had had influenza vaccinations were more inclined to consent to receiving the COVID-19 vaccine, which was supported by other research (Nomura et al., 2021; Shmueli, 2021; Mahmud et al., 2021; El-Elimat et al., 2021; Wang et al., 2020; Fisher et al., 2020). This might be accounted by the fact that those who had a pleasant vaccination experience were more likely to accept subsequent immunizations than those who had a bad one. Additionally, this study demonstrated that respondents who adhered to preventative practices against COVID-19 had a considerably higher admission rate for vaccination against the disease, and this finding was regarded as an independent predictor that affected vaccine acceptance. A possible explanation for this finding could be that those people take all measures to protect themselves against the COVID-19, either non-pharmacological as masking and maintaining social distance or medical intervention as vaccination. Previous research in Somalia supported this result (Ahmed et al., 2021).The current research adopted the health belief model to measure the participants' beliefs about the COVID-19 vaccination and predict the willingness to accept it. As a result, the chance of receiving the COVID-19 vaccination was most reliably predicted by perceptions of severity, benefits, obstacles, and signals to action. Self-efficacy and perceived vulnerability to illness were not linked to vaccination acceptance. The fact that fewer than 50% of the interviewees believed

they had a chance of contracting the virus may help to explain this. This was consistent with a research in Hong Kong that examined public acceptability of the COVID-19 vaccination using the healthcare belief paradigm (Wong et al., 2021). The significance of perceived advantages and obstacles to vaccination adoption has been supported by other studies from Malaysia and the United States (Wong et al., 2020; Mercadante and Law, 2021). The significance of perceived sickness severity, vaccine advantages, and vaccination hurdles in predicting vaccine adoption was also highlighted in a recent French study. the year 2021 (Guillon and Kergall).

The results regarding the perceived severity of the disease indicate that participants who accept getting vaccinated against COVID-19 believe that the severity of the consequences is dangerous and view themselves as at a higher risk for long-term health complications than those who do not accept to receive the vaccine. Additionally, it was believed that a major obstacle to the use of a disease's vaccination was not being aware of how serious the sickness was (Sengupta et al., 2004). This highlights the need to raise risk perception and severity among older adults, particularly those who believe that the disease is not dangerous. Similarly, other studies confirmed our results (Mahmud et al., 2021; Shmueli, 2021). While, a study in China contradicted this finding and revealed that the perceived severity of the infection did not influence vaccine hesitancy (Chen et al., 2021). More importantly, our study discovered that the perceived benefits of receiving the COVID-19 vaccine were positively related to vaccination acceptance. Elders who accept to get the vaccine viewed high perceived benefits, namely, vaccination can help in fighting the pandemic, protecting themselves and others from getting the infection, and making them less worried about exposure to the infection. A similar finding was reported in other studies (Mahmud e al., 2021; Mercadante and Law, 2021; Wong et al., 2020).

The acceptance rate was specifically adversely correlated with the impression of vaccine obstacles, and perceptions were much lower among respondents who supported the notion of vaccination. Concerns regarding the COVID-19 vaccine's efficiency and safety were among the most often mentioned impediments. These were followed by reservations about the vaccine's possible negative effects. Only a tiny minority of responders, however, considered the vaccine's price and accessibility to be obstacles. This demonstrated the crucial role that self-efficacy played in relation to vaccine acceptance when compared to other factors like livability, which was concordant with the current study because self-efficacy—the degree to which participants felt optimistic in their ability to receive the vaccine—was higher among the group who were accepted but was not considered a significant predictor. This is in line with a Russian research that discovered the majority of participants were concerned about the vaccine's efficiency, safety, and adverse effects (Tran et al., 2021). Additionally, similar impediments influencing vaccine uptake were observed by other studies in China, Malaysia, Japan, and Europe (Nomura et al., 2021; Wong et al., 2020; Lin et al., 2020; Neumann-Bohme et al., 2020). The Health Belief Model's key concept of cues to action—the advice of a reliable medical professional—was found to be a key predictor of vaccination adoption. This is in line with a Chinese study, which discovered that those who regarded doctors' advice tended to obtain shots right away (Wang et al., 2020). This survey also discovered that more than 50% of subjects said they would use the vaccine if enough people took it and if enough news outlets confirmed its efficacy and safety. Our findings were supported by research from China and Russia (Tran et al., 2021; Lin et al., 2020). The relevance of deploying an intervention plan based on scientific evidence about the safety, efficacy, potential side effects, and perks of the COVID-19 vaccine among the wider public was thus emphasized by our data pertaining to the HBM variables in order to encourage

positive vaccination behavior and raise vaccination rates. Understanding the factors that influenced respondents' decisions to accept or reject immunization is crucial, especially for recently developed antibodies like the COVID-19 shot. Assessment of vaccination attitudes would thus be beneficial (Szczerbinska et al., 2017). In the present investigation, general vaccination attitudes served as a predictor of uptake of the COVID-19 vaccine. Similar results were observed in two studies conducted in the USA, which showed that Americans' overall attitudes toward vaccination are strongly predictive of their desire to receive the COVID-19 vaccine (Berg and Lin, 2021; Chu and Liu, 2021). Additionally, a research conducted in Japan found that the second most frequent factor affecting vaccine readiness is attitude toward immunization in general, not only the COVID-19 vaccine (Nomura et al., 2021). In contrast, a different research discovered that people's opinions toward vaccination were not a factor in whether or not they requested the COVID-19 immunization (Shmueli, 2021).

Conclusion

The COVID-19 vaccine was found to have a moderate level of acceptance among people, according to the data. Age, sex, living arrangement, the presence of chronic health conditions, perceived health status, plus compliance with COVID-19 preventive measures were independent predictors of vaccine acceptance among older adults. Furthermore, risk perception, advantages, impediments, and cues to action all predicted vaccine uptake independently. In addition, vaccine acceptance was associated with vaccine attitude. The findings imply that in order to affect the vaccination intentions of a person, COVID-19 public health initiatives should be designed and implemented at several levels. Policymakers should consider this to achieve better vaccination results. Vaccine programs and public health intervention programs should place a greater emphasis on increasing the perceived vaccination value plus the perceived severity of the

disease. Several cues to action should also be considered, such as the Ministry of Health investing more resources in public awareness campaigns and making vaccinations available at work. In terms of subjective norms, efforts should be made to persuade people to use social media to communicate their favorable feelings and experiences regarding COVID-19 immunization with their friends and family.

Limitations of the study

This study has some limitations because it was conducted in only one setting and can't be generalized to Egyptian citizens. Second, the research employed a cross-sectional observational design, which precludes the establishment of any causal effect relationship.

Our findings contribute to the growing body of knowledge about early post-discharge consequences in COVID-19 patients. Furthermore, COVID-19 wreaked havoc on immigrant neighborhoods in New York City, and our research included people from all walks of life, with no language barriers: approximately one-fifth of the patients in our study used an interpreter to complete the survey. It does, however, have certain restrictions. The objective markers of pulmonary function are not included in our survey. We compared the post-COVID outcomes of the current circumstance to an identity pre-COVID state, which may be vulnerable to response bias. Our findings aren't generalizable, so we also looked at the experiences of less fortunate patients—those who needed institutionalization and at minimum 6 liters of breathing while they were there. Our findings "may understate the magnitude of comment diagnoses among those with severe COVID-19" because we "excluded frail elders, human beings with alzheimers, and clients in or suitable for lengthy care, all of whom might be predicted to have worse objectives, and we weren't able to reach several caregivers who had been rehospitalized" (Weerahandi et al., 2021). Readmission may potentially be underreported due to self-reported usage outcomes. 32

The long-term consequences are still unknown. The single health system design may limit generalizability; nevertheless, our health system includes many institutions in both urban and suburban locations, and our patient group was heterogeneous.

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