University Of Misan

College Of Nursing

Evaluation of Nurses' Knowledge toward patients with covid -

19 at health care center in Al-Amara city, Iraq.

Submitted to the Council of the College of

Nursing at the University of Misan in Partial

Fulfillment of the Requirement for Degree

of Bachelor in Nursing Science

Prepared By:

1. Huda sa'adoon khadhban
2. Zahra Yaqoub Abd Al-Zahra
3. Duaa Mohammed Abd Al-Zahra

Supervisor:

1- Dr.Haider Kareem Abood
2- Lecture. Mohammed Jassem

July2021   Dhul al-Qa'dah1442

نحن الموقعون في ادناه المشرفين على البحث الموسوم(تقييم معرفة الممرضين أتجاه مرضى كوفيد - 19 في مركز الرعاية الصحية في مدينة العمارة ، العراق.) وقد تم من قبل الطــــلاب

(هدى سعدون غضبان، زهراء يعقوب عبد الزهره، دعاء محمد عبد الزهره)

وقد تم اجراء البحث تحت اشرافنا

المشرفان

م. محمد جاسم قاسم	أ.م. د. حيدر كريم عبود
التوقيع:	التوقيع:
التاريخ: / / 2021	التاريخ: / 2021/

(بِسْمِ اللَّـهِ الرَّحْمَـٰنِ الرَّحِيمِ)

﴿يَرْفَعِ ٱللَّهُ ٱلَّذِينَ ءَامَنُوا۟ مِنكُمْ وَٱلَّذِينَ أُوتُوا۟ ٱلْعِلْمَ دَرَجَـٰتٍ ۚ وَٱللَّهُ بِمَا تَعْمَلُونَ خَبِيرٌ﴾

"صدق الله العلي العظيم "

[سورة المجادلة: 11]

🌸 إهداء 🌸

إلى الذين قوافلهم تسير من الأرض إلى السماء محملتاً بأحلام وأقلام بأمنيات

وأطفال بأيتام وجدائل مهمشة . إليكم نزف أحلامنا ، أجتهادنا لنبين لكم إن

الحياة بكم تستمر شهداء الحشد وملائكة ثورة أكتوبر لكم ثمرة تعبنا كما

كان لنا دمكم الطاهر طريق معبد لنعيش بأمان .

إلى والدتي العزيزة حبا وإكراما

إلى من لا يمكن للكلمات إن توفي حقه

إلى والدي العزيز أدام الله ظله

إلى كل أساتذتي وجميع أصدقائي و أحبائي

اهدي هذا العمل المتواضع...

الشكروالأمتنان

الحمد الله حق حمده والصلاة والسلام على من لا نبي بعده محمد صل الله عليه واله وسلم.

الحمد الله الذي أنار لنا درب العلم والمعرفة وأعاننا

على أداء هذا الواجب ووفقنا إلى انجاز هذا العمل

نتوجه بجزيل الشكر و الامتنان الى كل من ساعدننا على انجاز هذا العمل

ونخص بالذكر

مشرفا البحث

(أ. م . د حيدركريم عبود) و(م. محمد جاسم قاسم)

والممرضة الجامعية (مريم هاشم فعل)

الذين لم يبخلوا علينا بتوجيهاتهم ونصائحهم القيمة والتي كانت عونا

لنا في إتمام هذا البحث متمنين لهم دوام التوفيق و النجاح في كافة

مجالات الحياة.

List of Contains

Abstract

•**Objectives:** The purpose of this study was to evaluate the knowledge, attitude, and behavior of Nursing staff concerning COVID-19 that is a helpful approach to upgrade the prevention and control procedures in similar situations using past prevention and to find out association between the nurses knowledge with their socio-demographic characteristics (age, gender, level of education, years of experience and duration of work).

•**Methodology:** An assessment descriptive study was conducted at Al-Sader Teaching Hospital, Qalat Salah General Hospital and Misan center for Heart disease and surgery during the period from Dec. 29th, 2020 until, 2021 10th July under the title to (evaluate Nurses' Knowledge toward patients with covid - 19 at health care center in Al-Amara city (Iraq. Analysis of data was performed through the application of description statistic and Inferential statistical (Chi-square test) .

• **Results:** The results of the study indicated that more than one-third of age group in the study sample were within (24-28 years) as they constituted (36%) of the study sample, and with regard to gender, more than half of participants were male, where they constituted a percentage of (60%), as for the educational level, the study showed that half of participants have a diploma in nursing, where they constituted a percentage of (56%), As for the number of years of experience, more than a half of nurses have (1-5 years) in the service and constituted (56%) of the study sample. With regard to the duration of work at the covid19, on-third of participants have (9 months) as their percentage reached (36%). In conclusion, the study concluded that most

of the participants have a high level of knowledge, and they constituted (87%) of the study sample. The study showed a high significant correlation between nurses' knowledge and their age, work place and duration of work at the covid-19 center.

• **Recommendations :** The study recommended that a plan for nursing forces be made for investing in nurses, as they make up the largest healthcare group and are very important healthcare workers who have very clear and significant roles, It is recommended that nurses respond effectively to the pandemic and that all medical supplies be available, such as PPE, to help keep the lives of nurses and patients safe and holding health education programs about COVID-19 which are beneficial and essential to overcome the disease.

List of Contains

List of Tables

List of Abbreviation

Items	Meaning
COVID-19	coronavirus disease (COVID-19)
MERS-CoV	Middle East respiratory syndrome–related coronavirus)
SARS-COV-2	severe acute respiratory syndrome coronavirus 2
WHO	World Health Organization
ACE2	Angiotensin-converting enzyme 2
RT-PCR	Reverse transcription polymerase chain reaction
PAHO	Pan American Health Organization
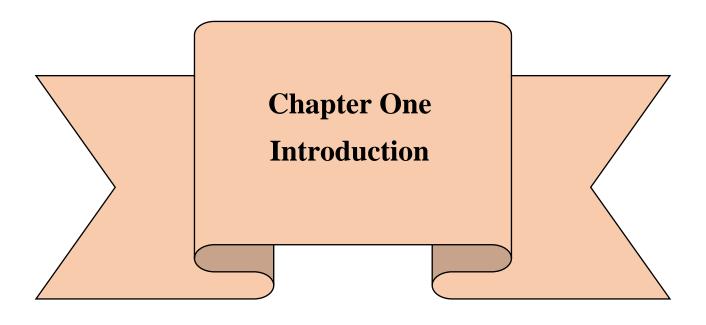
RNA	ribonucleic acid
CT scan	Computed tomography
GAVI	The Global Alliance for Vaccines and Immunizations
PPE	Personal Protective Equipment
CEPI	Coalition for Epidemic Preparedness Innovations
ICU	An intensive care unit
FAO	Food and Agriculture Organization
TMPRSS2 protease.	Transmembrane protease serine 2
HCWs	Health care workers
AKI	acute kidney injury
ARDS	Acute respiratory distress syndrome
IL-6	interleukin 6
OC	organ culture
HCoV-HKU1	human coronavirus,
nCoV	Novel coronavirus

List of Figures

Chapter One

Introduction

1.1 Introduction

Coronavirus is one of the major viruses which primarily affecting the respiratory system in human. However, Coronaviruses have been also diagnosed in animals and can cause a range of severe diseases such as gastroenteritis and pneumonia. Previous coronavirus outbreaks have been reported, including severe acute respiratory syndrome (SARS-CoV) and Middle East respiratory syndrome (MERS-CoV), which is described as a significant public health threat. In 2002, coronavirus infections (SARS-Covs) spread in Guangdong, south China, causing high fever, breathlessness and pneumonia, and rapidly spread to various regions around the world (Sarhan et.al.,2020).

Coronaviruses, like influenza viruses, circulate in nature in various animal species. Alpha-coronaviruses and beta-coronaviruses can infect mammals and gamma-coronaviruses and delta-coronaviruses tend to infect birds, but some of them can also be transmitted to mammals. The virus can cause symptoms such as sore throat, tremor, confusion, high fever, shortness of breath, dry cough, headache, nausea, vomiting, and diarrhea in the patients . Because of the Incubation period of 2-14 days of the SARS-CoV-2, its high transmission power and the similarity of its symptoms to the common cold, most people neglect the infection, which causes its increased transmission and more outbreaks among people (Ozma.,2020).

The initial symptoms included fever (98%),cough (76%), dyspnea (55%), myalgia or fatigue (44%), sputum production (28%), headache (8%), hemoptysis (5%) , and diarrhea (3%). Only one patient did not present fever in the early stage of disease. Twelve (29%) cases progressed to acute respiratory distress syndrome (ARDS), 5 (12%) had acute cardiac injury, 3 (7%) had acute kidney injury (AKI), and 3(7%) had shock. At the

data cutoff date, 28 (68%) patients were discharged and 6 (15%) had died (Jiang et.al.,2020).

At the end of 2019, a series of pneumonia cases of unknown cause emerged in Wuhan (Hubei, China). A few weeks later, in January 2020, deep sequencing analysis from lower respiratory tract samples identified a novel virus severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) as causative agent for that observed pneumonia cluster . On February 11th, 2020, the World Health Organization (WHO) Director-General, Dr. Tedros Adhanom Ghebreyesus, named the disease caused by the SARS-CoV-2 as "COVID-19" (Di Gennaro et.al.,2020).

The first human cases of COVID-19, were first reported by officials in Wuhan City, China, in December 2019. Retrospective investigations by Chinese authorities have identified human cases with onset of symptoms in early December 2019. While some of the earliest known cases had a link to a wholesale food market in Wuhan, some did not (WHO.,2020).

Between 31 December 2019 and 14 February 2020, a total of 49,070 laboratory-confirmed cases of COVID-19 cases have been reported worldwide, though majority of the cases continue to be reported from China (99%). In China, health care workers account for 1, 716 confirmed cases of COVID-19 including six deaths. Of the total 1,383 deaths reported to date, 1,381 are from China (1 in Hong Kong SAR) and the remaining two are from the Philippines and Japan. Outside China, 25 countries reported a total of 523 confirmed cases of which at least 170 had a travel history to China and 218 are related to outbreak on a Cruise Ship (PAHO.,2020).

Progressing COVID-19 pandemic was affirmed without precedent for Iraq in February 2020. Cases were affirmed in each of the nineteen Iraqi

governorates until March 27, with the Kurdistan Region of Iraq representing 309 (26%) of these cases until April 8. During the pandemic, Iraq announced its initially affirmed instances of SARS CoV-2 contamination on February 22, 2020 in Najaf. By April, the quantity of affirmed cases surpassed 100 in Baghdad, Basra, Sulaymaniyah, Erbil, and Najaf (Al-Kaabi et.al.,2020).

Several efforts to develop vaccines are underway, but the WHO estimates it will take 18 months for the COVID-19 vaccines to be available. At present, most treatment is symptomatic and supportive, though anti-inflammatory and antiviral treatments have been employed. Supportive treatment for complicated patients has included continuous renal replacement therapy (CRRT), invasive mechanical ventilation, and even extracorporeal membrane oxygenation (ECMO). No specific antiviral drugs have been confirmed effective (Jiang et.al.,2020).

It seems that the current widespread outbreak has been partly associated with a delay in diagnosis and poor infection control procedures. As transmission within hospitals and protection of healthcare workers are important steps in the epidemic, the understanding or having enough information regarding sources, clinical manifestations, transmission routes, and prevention ways among healthcare workers can play roles for this assessment. Since nurses are in close contact with infected people, they are the main part of the infection transmission chain and their knowledge of 2019-nCoV prevention and protection procedures can help prevent the transmission chain (Nemati et.al.,2020).

1.2 Importance of Study

The coronavirus belongs to a family of viruses that may cause various symptoms such as pneumonia, fever, breathing difficulty, and lung

infection . These viruses are common in animals worldwide, but very few cases have been known to affect humans. World Health Organization (WHO) used the term 2019 novel corona- virus to refer to a coronavirus that affected the lower respiratory tract of patients with pneumonia in Wuhan, China on 29 December 2019 (Adhikari et.al.,2020).

The World Health Organization declared COVID-19 outbreak a public health emergency of international concern (PHEIC-Pandemic) on January 30, 2020. Currently, COVID-19 has spread to over 200 countries and territories, with over 7.5 million cases and 4,19,568 deaths globally as of June 2020. In Nigeria, the first reported COVID-19 case was in Lagos on February 27, 2020, while the number of cases and death had gradually increased. As of June 12, 2020, COVID-19 cases in Nigeria have reached 15181 and 399 deaths, including healthcare workers (Ejeh et.al.,2020).

The novel coronavirus (COVID-19) has continued to spread in Iraq. As of 2 November, the World Health Organization reported 478,701 confirmed cases and 11,017 deaths; roughly a 11% and 6.7% increase respectively over the preceding two weeks. The COVID-19 pandemic and the diminishing oil revenues have increased Iraq's vulnerability to food insecurity.. Oil prices experienced an unprecedented fall in early 2020, followed by a modest recovery later this year. Over the past two weeks, Basra heavy oil prices fluctuated between USD 38.95 and USD 36.12 per barrel, up from minimum of USD 18.7 per barrel in April 2020, but well below USD 58.4 per barrel, the price recorded roughly one year ago (FAO et.al.,2020).

The study analysed healthcare workers' (HCWs) knowledge, practices, and attitudes regarding coronavirus disease 2019 (COVID-19). A cross-sectional survey was conducted from February 4th to February 8th,

2020, involving a total of 1357 HCWs across 10 hospitals in Henan, China. Of those surveyed, 89% of HCWs had sufficient knowledge of COVID-19, more than 85% feared self-infection with the virus, and 89.7% followed correct practices regarding COVID-19 (M. Zhang et.al.,2020).

Healthcare workers (HCWs) are at the frontline defense against the coronavirus disease 2019 (COVID-19) pandemic. Inadequate knowledge and incorrect attitudes among HCWs can directly influence practices and lead to delayed diagnosis, poor infection control practice, and spread of disease. This study aimed to assess the knowledge, perception, and attitude of HCWs towards the COVID-19 disease (Wafaa et.al.,2020).

Nursing is an essential component of medical care, and nurses' knowledge about disease directly affects patient outcomes. Similarly, during an outbreak, nurses' KAP play positive roles in improving the recovery rate, reducing the length of the hospital stay and mortality, and preventing in-hospital infection and occupational exposure [9, 10]. To date, most studies focus on the KAP of the general public, and few have investigated the KAP of nurses (Jin et.al.,2020).

1.3 Problem Statement

Evaluation of Nurses' Knowledge toward patients with covid - 19 at health care center in Al-Amara city, Iraq.

1.4 Objective of Study

1. The purpose of this study was to evaluate the knowledge, attitude, and behavior of Nursing staff concerning COVID-19 that is a helpful approach to upgrade the prevention and control procedures in similar situations using past preventive .

2. to find out the relationship between. nurse's knowledge about covid 19 and their demographic characteristic such as (age ,gender ,education, level).

1.5 Definition of Terms

1.5.1. Evaluation:

Theoretical definition:

An evaluation is an assessment, as systematic and impartial as possible, of an activity, project, programme, strategy, policy, topic, theme, sector, operational area, institutional performance (WHO.,2013).

Operational definition:

The process of judging or calculating the quality, importance, amount, or value of something.

1.5.2. Knowledge:

Theoretical definition:

Is the facts, feelings or experiences known by a person or group of people, In organizations, analysis of the word 'knowledge' is more relevant than other social settings (Ekore.,2014).

Operational definition:

A state of awareness or understanding of clinical manifestations, transmission methods and prevention methods in relation to Covid19 and what are the effects of knowledge in fighting infection and limiting its spread.

1.5.3. Nursing:

Theoretical definition:

The nurse is a person who has completed a program of basic, generalized nursing education and is authorized by the appropriate regulatory authority to practice nursing in his/her country. Basic nursing education is a formally recognized program of study providing a broad and sound foundation in the behavioral, life, and nursing sciences for the general practice of nursing, for a leadership role, and for post-basic education for specialty or advanced nursing practice (2012.,WHO) .

Operational definition:

A persons trained in the scientific basis of nursing, meeting certain prescribed standards of education and clinical competence to provide services that are essential to or helpful in the promotion , maintenance, and restoration of health and well- being .

1.5.4. Covid 19

Theoretical definition:

COVID-19 is a type of coronavirus disease belonging to the family Coronaviridae. The disease is thought to originate from bats and was spread to people through an unknown medium in Wuhan, China. Ideally, the condition is spread by inhalation or close interaction with infected droplets that have an incubation period between two and fourteen days. Today, there are thousands of infections and deaths that have been caused by the disease. Moreover, the symptoms of the disease include fever, cough, sneezing, sore throat, difficulty breathing, and tiredness (Albaraa A Milibari.,2020).

Operational definition:

Coronavirus disease 2019 (COVID-19) is defined as illness caused by a novel coronavirus now called severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2; formerly called 2019-nCoV), which was first identified amid an outbreak of respiratory illness cases in Wuhan City, Hubei Province, China. It was initially reported to the WHO on December 31, 2019. On January 30, 2020, the WHO declared the COVID-19 outbreak a global health emergency. On March 11, 2020, the WHO declared COVID-19 a global pandemic, its first such designation since declaring H1N1 influenza a pandemic in 2009.
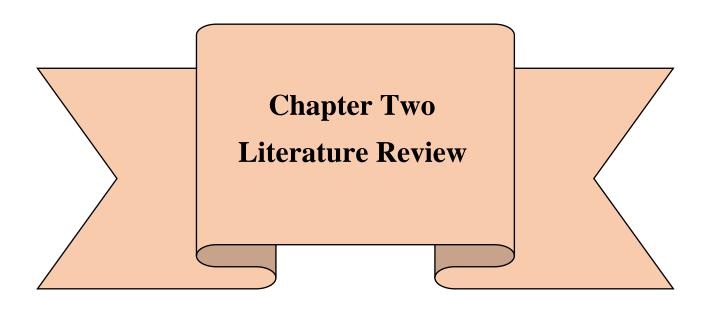
1.5.5. Patient

Theoretical definition:

Patient: A person under health care. The person may be waiting for this care or may be receiving it or may have already received it. There is considerable lack of agreement about the precise meaning of the term "patient." https://www.medicinenet.com/patient/definition.htm.

Operational Definition:

A patient is any recipient of health care services that are performed by healthcare professionals. The patient is most often ill or injured and in need of treatment by a physician, nurse, psychologist, dentist, veterinarian, or other health care provider.

Chapter Two

Literature Review

2.1. Background

SARS-CoV-2 which was previously known as 2019- nCoV now named by the International Committee on Taxonomy of Viruses, is a newly emerging virus affecting the respiratory tract. The disease the virus causes, which was named by the World Health Organization, is coronavirus disease 2019, better known as COVID-19. Given the severe acute respiratory syndrome coronavirus (SARS-CoV) outbreak in 2002 and the Middle East respiratory syndrome coronavirus (MERS-CoV) outbreak in 2012, 2019-nCoV is the third coronavirus to emerge in the human population in the past two decades — an emergence that has put global public health institutions on high alert. Now the infection has been reported in family clusters and medical workers. Also, person to person transmission has been reported. WHO has been deeply concerned by the alarming levels of spread and therefore, made the assessment that COVID-19 can be characterized as pandemic on 11 March 2020 (SHAHERA et.al .,2020).

According to the National Health Commission of China, the mortality rate among confirmed cased in China was 2.1% as of February 4 and the mortality rate was 0.2% among cases outside China . Among patients admitted to hospitals, the mortality rate ranged between 11% and 15% . COVID-19 is moderately infectious with a relatively high mortality rate, but the information available in public reports and published literature is rapidly increasing. The aim of this review is to summarize the current understanding of COVID-19 including causative agent, pathogenesis of the disease, diagnosis and treatment of the cases, as well as control and prevention strategies (Harapan et.al .,2020).
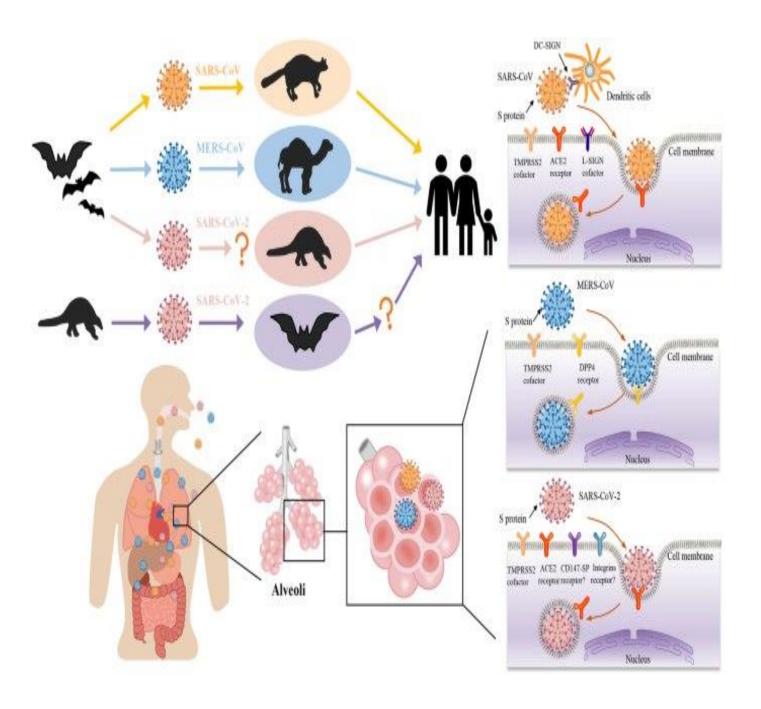
Figure (1): The potential animal hosts, biodistribution and host cell receptors of SARS-CoV, MERS-CoV and SARS-CoV-2

2.2.Definition

Coronaviruses one of the subfamily of Coronavirinae in the Coronaviridae family and often causes the common cold affect all ages . The term corona literally is to mean crown-like spikes on the outer surface of the virus and hence named as a coronavirus. Coronaviruses are approximately 65-125nm in diameter and contain a single-stranded RNA as a nucleic material. Coronaviruses previously infect only animals now mutated to infect human beings. Among corona families, namely alpha (α), beta (β), gamma (γ) and delta, only alpha (α) and beta (β) can infect human being (Health Science Journal .,2020).

2.3.Epidemiology

In the beginning, an association with a seafood market selling live animals in Wuhan, where most of the earlier patients having pneumonia had worked or visited, was recognized. However, as the epidemic disease grew, person-to-person transmission became the principal means of spread. COVID-19 infection is spread using large droplets produced during coughing and sneezing by symptomatic cases but may also happen from asymptomatic individuals before starting of their symptoms (9). These infected droplets can travel 1–2 meters (Eeciyes .,2020).

The first 54 reported cases of COVID-19 were observed in December 2019 in Wuhan, China, and this has now spread across the globe affecting 440,318 people in 195 countries, according to data available on various websites regarding COVID-19 infections around the world. Cases are increasing exponentially. As of March 25, 2020, there were 413,467 reported cases, including 18,433 deaths and 103,366 recoveries which increased 5 times to 18,48,439 including 117,217 deaths and 485,303 Worldwide recoveries until April 14, 2020 (Nishant et.al .,2020).

Iran is the third country with the largest number of reported COVID-19 cases after China and Italy, as of March 16, 2020, with 14,991 cases, being the first in the Middle East region, and it may become an important source of imported cases. In this regard, in countries such as Iraq, Afghanistan, and Pakistan. All confirmed cases in Saudi Arabia are imported from Iran and one from Iraq and other cases are in close contact with those confirmed cases. The imported cases from Iran have been diagnosed in Kuwait, Bahrain, Iraq, Oman, and Qatar, among other Asian countries, but also in Georgia, Estonia, and Belarus (maysaa and maitham .,2020).

2.4.History and Origin

Tyrell and Bynoe isolated first human coronavirus in the year 1965 from the respiratory tract of a patient with complain of common cold . The virus was named B814. However, the researchers failed to grow the agent in culture media. In a similar study by Hamre and Procknow, the researchers reported similar kind of virus which they named 229E isolated from the samples obtained from medical students with cold . In another study by McIntosh et al. ether sensitive agents of multiple strains were isolated from human respiratory tract . Since they were grown in organ culture, hence were named "OC" . At about the same period of time Almeida and Tyrrel studied organ cultures infected with B814 exploiting electron microscopy and reported particulates of size 80-150 nm resembling infectious bronchitis virus of chickens. Astonishingly both 229E agent identified by Hamre and Procknow and OC virus reported by McIntosh et al. were found to have similar morphology (Jahangir et.al .,2020).

First case of corona virus was notified as cold in 1960. Ac- cording to the Canadian study 2001, approximately 500 patients were identified as Flu-like system. 17-18 cases of them were confirmed as infected with corona virus strain by polymerase chain reaction. Corona was treated as simple non fatal virus till 2002. In 2003, various reports published with the proofs of spreading the corona to many countries such as United States America, Hong Kong, Singapore, Thailand, Vietnam and in Taiwan. Several case of severe acute respiratory syndrome caused by corona and their mortally more than 1000 patient was reported in 2003. This was the black year for microbiologist. When microbiologist was started focus to understand these problems. After a deep exercise they conclude and understand the patho- genesis of disease and discovered as corona virus. But till total 8096 patient was confirmed as infected with corona virus (Kumar et.al .,2020).

The sixth coronavirus MERS-CoV was identified in Saudi Arabia in 2012 . However, the story continues with the new identification of SARS-CoV-2 in December 2019 at the seafood wholesale market in Wuhan, China. SARS-CoV-2 is the seventh member of the family of coronaviruses that infects humans and it is different from both MERS-CoV and SARS-CoV. Although some infections caused by human coronaviruses are mild and associated with common colds, certain animal and human coronaviruses can make a severe impact on the human population. Especially in young children, elderly people, and immune-deficient patients, the infections can be lethal (Yesudhas et.al .,2020).
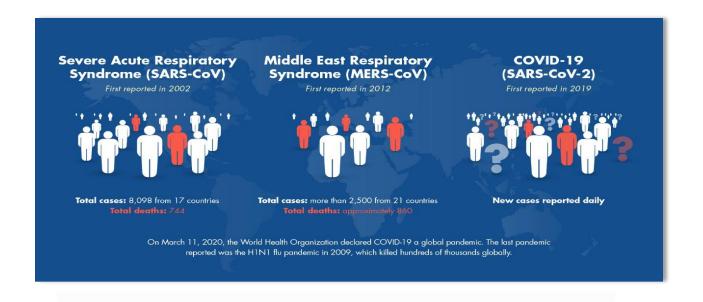
Figure (2) : History of coronavirus disease .
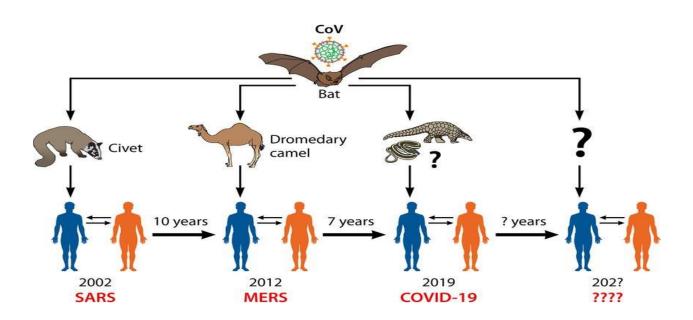
Figure (3): Coronavirus Origin

2.5. Genomic Structure of coronavirus

Coronavirus belongs to the order Nidovirales, family Coronaviridae and subfamily Coronavirinae. This subfamily is further divided into alpha, beta, gamma and delta coronaviruses based on phylogenetic clustering. These viruses are made up of enveloped single-stranded RNA genome of size range 26-32 kilobases. The genome contains a 5′ cap structure along with a 3′ poly (A) tail, helping it to act as mRNA for translation of the replicase polyproteins . The 5′ end of the coronavirus genome contains untranslated region and a leader sequence that contains multiple loop structures which assists in RNA transcription and replication. Transcriptional regulatory sequences are also present at the beginning of each structural gene assisting in their expression. The 3′UTR part also contains RNA structures which assists in replication and synthesis of viral RNA. The accessory proteins present in corona virus are non-essential for replication in tissue culture; however, some have shown to play important roles in viral pathogenesis (Jahangir et.al .,2020).

2019-nCoV particles were generally spherical, enveloped with some pleomorphism in electron micrographs, it is about 60 to 140 nm in diameter. Coronavirus are RNA virus and the virus particles have quite distinctive spikes, about 9 to 12 nm, which give them the appearance of a solar corona. Due to, genetic similarities between the new coronavirus and the coronavirus that caused the SARS outbreak in 2002- 2003, recently the new virus has been renamed as SARS-CoV-2.4 (HCoV-OC43, HCoV-229E, HCoV-NL63, HCoV- HKU1) are the four other human coronaviruses induce mild upper respiratory disease similar to common cold (UMME et.al.,2020).
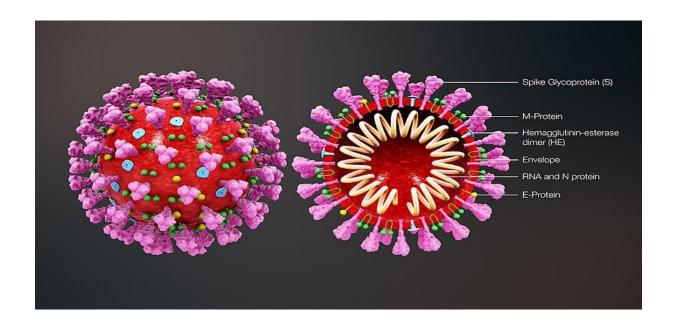
Figure (4) :Structure of coronavirus

2.6. Classification of coronavirus

SARS-CoV-2 is a member of the family Coronaviridae and order Nidovirales. The family consists of two subfamilies, Coronavirinae and Torovirinae and members of the subfamily Coronavirinae are subdivided into four genera: (a) Alphacoronavirus contains the human coronavirus (HCoV)-229E and HCoV-NL63; (b) Betacoronavirus includes HCoV-OC43, Severe Acute Respiratory Syndrome human coronavirus (SARS-HCoV), HCoV-HKU1, and Middle Eastern respiratory syndrome coronavirus (MERS-CoV); (c) Gammacoronavirus includes viruses of whales and birds and; (d) Deltacoronavirus includes viruses isolated from pigs and birds. SARS-CoV-2 belongs to Betacoronavirus together with two highly pathogenic viruses, SARS-CoV and MERS-CoV. SARS-CoV-2 is an enveloped and positive-sense single-stranded RNA (+ssRNA) virus (Harapan et.al.,2020).

2.7.Mode of transmission

Modes of transmission traced in an imported case are through droplet transmission, fecal-oral route, conjunctiva and fomites . Additionally, local transmission can be traced back to the patient's bodily fluids such as respiratory droplets, saliva, feces, and urine . The virion is stabilized at lower temperatures, i.e., 4°C has higher survival than 22°C . As SARS-CoV-2 virions are shed throughout the clinical course, patients with COVID-19 can spread the infection prior to symptom presentation, during the symptomatic course and during the clinical recovery period. Additional considerations must be made regarding the residence time of the SARS-CoV-2 virion on surfaces. The half-life of SARS-CoV-2 in aerosols, copper, cardboard, stainless steel, and plastic are 1.5 h, 1 h, 3.4 h, 5.6 h, and 6.8 h, respectively. The viable residence time of SARS-CoV-1 in aerosols, copper, cardboard, stainless steel, and plastic are 3 h, 4 h, 24 h, 48 h, and 72 h, respectively (Pramath et.al.,2020).

There is scarce evidence to suggest airborne transfer . Very minimal to no RNA concentration is found in air- borne samples . No RNA is detected in urine or serum samples of positive patients . Viral RNA can be detected on fomites including plastic . The mean incubation period is about 3–9 days, with a range between 0–24 days . The mean serial interval is about 3–8 days, presenting sooner than the end of incubation . This suggests that one becomes contagious before symptoms present (about 2.5 days earlier from the start of symptoms) . About 44 % of transmission is estimated to occur before symptoms arise . Close contact with someone during their infectious period puts one(Siordia Jr.,2020).
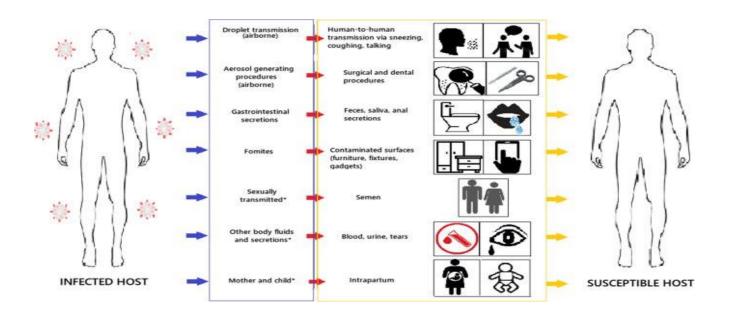
Figure (5): Mode of transmission covid19

2.8.Pathogenesis

The SARS-Co-2 infection enters the host cells through the S spike protein by binding to ACE2 for internalisation, and aided by TMPRSS2 protease. The high infectivity of the virus is related to mutations in the receptor binding domain and acquisition of a furan cleavage site in the S spike protein. The virus interaction with ACE2 may down regulate the anti-inflammatory function and heightened angiotensin II effects in predisposed patients (Azer et.al.,2020).

The pathogenic mechanism that produces pneumonia seems to be particularly complex . The data so far available seem to indicate that the viral infection is capable of producing an excessive immune reaction in the host. In some cases, a reaction takes place, which as a whole is labelled a "cytokine storm". The effect is extensive tissue damage. The protagonist of this storm is interleukin 6 (IL-6). IL-6 is produced by activated

leukocytes and acts on a large number of cells and tissues . It is able to promote the differentiation of B lymphocytes, promotes the growth of some categories of cells, and inhibits the growth of others. The virus might pass through the mucous membranes, especially nasal and larynx mucosa, then enters the lungs through the respiratory tract. Then the virus would attack the targeting organs that express angiotensin converting enzyme 2 (ACE2), such as the lungs, heart, renal system and gastrointestinal tract. The virus begins a second attack, causing the patient's condition to aggravate around 7 to 14 days after onset (Francesco et.al.,2020).
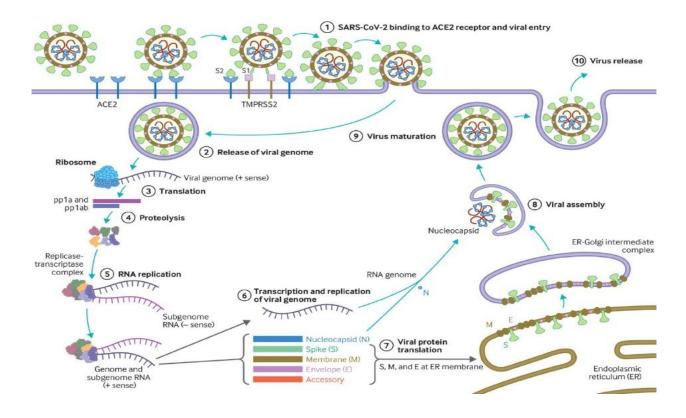
Figure (6) : Transmission and pathogenesis of SARS-CoV-2

2.9.Risk factors

Obesity increases the risk for becoming severely ill from COVID-19. In a study in France,1 the odds of developing severe COVID-19 were seven times higher in patients with obesity and smoking In a meta-analysis,2 smokers were 1.5 times more likely to have severe complications from COVID-19 and had a higher mortality rate and Cancer patients are more likely to experience severe COVID-19.13 A study in Wuhan, China, showed that the mortality rate from COVID-19 was significantly increased in patients with cancer and was particularly high among those with blood cancers (WHO.,2020).

And SARS-COV-2 infection is most often observed in adult male patients whose average age of patients was be88tween 34 and 59 years of age. People with chronic comorbidities such as cardiovascular disease, cardiovascular disease and diabetes have the highest incidence of cases. Severe adults of 260 years of age Those with some underlying conditions, such as cardiovascular disease, brain and blood vessel disease, and diabetes (Harapan et al.,2020).

2.10. Signs and Symptoms

The symptoms of COVID-19 vary amongst individuals, ranging from asymptomatic infection to severe respiratory failure. An Italian population cohort study conducted in the town of VòEuganeo by Dr. Lavezzo and colleagues, 2020 (unpublished data) showed that around 50-75% of individuals with positive RT-PCR throat swab results remain asymptomatic, whilst others develop mild flu- like symptoms and a further small percentage (about 10% of all symptomatic patients) present dysp-noea, severe interstitial pneumonia, ARDS and multiorgan dysf (Guiseppe et.al.,2020).

A recent study led by Prof. Nan-Shan Zhong's team, by sampling 1099 laboratory-confirmed cases, found that the common clinical manifestations included fever (88.7%), cough (67.8%), fatigue (38.1%), sputum produc- tion (33.4%), shortness of breath (18.6%), sore throat (13.9%), and headache (13.6%). In addition, a part of patients manifested gastrointestinal symptoms, with diarrhea (3.8%) and vomiting (5.0%). The clinical manifestations were in consistence with the previous data of 41, 99, and 138 patients analysis in Hubei province . Fever and cough were the dominant symptoms whereas upper respiratory symptoms and gastrointestinal symptoms were rare, suggesting the differences in viral tropism as compared with SARS-CoV , MERS- CoV , and influenza (Yan-Rong et.al .,2020).
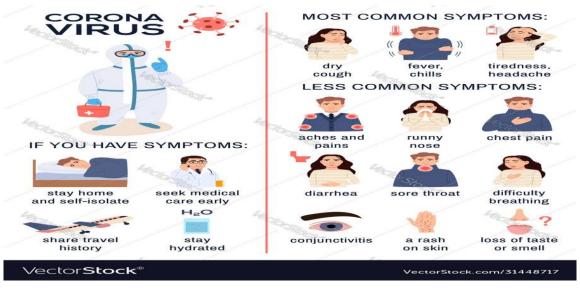
Figure (7) : sings and Symptoms

2.11.complications

2.11.1.Respiratory system

It is characterized by general complications (fever, dry cough, shortness of breath) and the average appearance of symptoms is 5 days of shortness of breath and 7 days of hospitalization and acute treatment of respiratory distress syndrome begins after the second and third week, according to the World Health Organization (Hu z et.al .,2020).

A multicenter group study of 235 hospitals from 24 countries, which includes 1,128 patients and 294 confirmed cases of COVID-19, indicates that up to 51.2% experience acute lung complications after surgery and that the majority of deaths are largely due to pulmonary embolism. Autopsy reports obtained from COVID-19 patients who died from acute respiratory distress syndrome showed severe damage to the socket and infiltration of perivascular T cells.Tissue analysis also showed increased thrombus formation, angiogenesis, and microangiopathy in COVID-19 patients compared to influenza (Arun and Anindita.,2020).

2.11.2.Heart and blood vessels

Among the most common complications were high blood pressure from 35% to 57%, coronary artery disease 10% to 17% and congestive heart failure (CHF) 6% to 7%. Those with cardiovascular disease appear to be at increased risk of acute manifestations of COVID-19 disease, and 30% to 35% of COVID-related deaths have underlying cardiovascular disease (Lauren et.al.,2020).

A study of 99 SARS-CoV-2 infected patients who were isolated in Wuhan Jinyintan Hospital, China, there were 11 deaths due to sudden cardiac arrest among those patients with no prior history of ischemic heart disease. However, the cause of death may be due mainly to impaired

pulmonary ventilation, perfusion, and reduced pulmonary vascular capacity, but the relationship between SARS infection and heart failure remains unclear (Kenneth et.al.,2020).

2.11.3.Neurological symptoms

Signs and symptoms can be divided into: (a) Central nervous system symptoms, such as headache, dizziness, impaired consciousness, acute cerebrovascular disease, and epilepsy. (B) Presentations on the peripheral nervous system, such as neuralgia, decreased taste, smell and appetite; And (c) presentations of skeletal muscle injury. In a retrospective study of 214 patients diagnosed with SARS-CoV-2, 78 of these patients had some neurological symptoms, accounting for 36.4% of all confirmed COVID-19 patients (Kenneth et.al.,2020).

2.11.4.Kidneys

Kidney impairment occurs in some COVID-19 patients. More than 50% of patients admitted to the ICU have acute kidney injury (AKI) characterized by a high level of creatinine in the blood, decreased urine output, or both as a result of multiple factors. Previous reports revealed incidence and mortality rates of 5--15 and 60-90. %, Respectively, for cases of acute renal insufficiency, another retrospective study showed that SARS-CoV-2 directly affects the renal tubules leading to acute tubular damage and cytotoxicity, and thus, acute renal failure in COVID-19 patients especially among the elderly And ailing patients (Prince et. al.,2020)**.**

2.11.5.Gastrointestinal

In 73 patients hospitalized with COVID-19, 53.4% tested positive for SARS-CoV-2 RNA in stool, and 23.4% continued to have RNA-positive stool samples even after testing negative respiratory specimens. In people with COVID-19. Of the 138 hospitalized patients, 10.1% had complaints of diarrhea and nausea and 3.6% had complaints of vomiting. Those who report nausea and diarrhea note that they developed these symptoms one to two days before developing a fever. Also, among a group of 1,099 Chinese patients with COVID-19, 3.8% complained of diarrhea. 18 Although diarrhea does not occur in the majority of patients, Gl's complaints, such as nausea, vomiting, or diarrhea, should raise suspicion. In the incidence of COVID-19 (Culter and Norman.,2020).

2.12.Diagnosis

Since the World Health Organization (WHO) recently declared COVID-19 a pandemic on 11 March 2020, every patient presenting with evidence of fever, respiratory symptoms, gastrointestinal symptoms, or fatigue should be considered potentially infected (suspected case) with SARS-CoV-2. Diagnosis of COVID-19 is made by using real- time polymerase chain reaction (RT-PCR) on samples from nasopharyngeal, oropharyngeal swabs, and lower respiratory tract samples whenever possible. Negative nasopharyngeal swab is generally re-tested after 24 h due to the low negative predictive value of this testing (Matteo et.al.,2020).

And CT images of the chest The CT scan of the chest is a major component of the diagnostic work of patients with suspected infection, and our investigation has shown some imaging findings that are frequently encountered in affected patients. On a CT scan of the lungs, white spots can be clearly seen. Usually this is a sign of an abnormality that radiologists call ground opacity or partial filling of the air spaces in the

lungs. These types of abnormalities also appear in patients with SARS (Kowsar , Hamidreza and Milad.,2020).
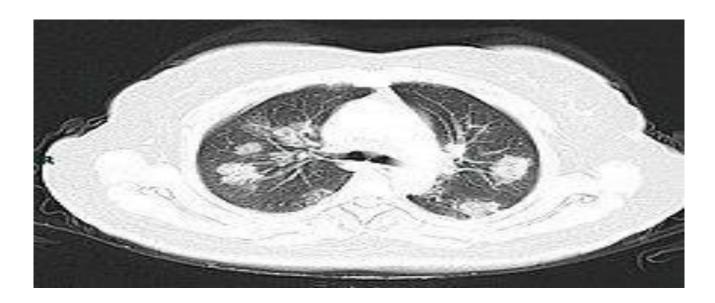
Figure (8) : CT scan of a person with COVID-19 shows lesions (bright regions) in the lungs.

2.13.Treatment

The diagnosis of SARS-Cov2 infection was made, the prevention and quarantine are considered as the most way to stop the fast spreading of the virus, because there is no effective vaccine, drugs, or antiviral to prevent and treat this disease despite the great efforts made by the scientists and researchers around the world to develop vaccines and treatments of coronavirus. Furthermore, several strategies were carried out to help patients with COVID-2019 as oxygen therapy (major treat- ment intervention), antivirals (Lopinavir, Ritonavir, Ribavirin, Favipiravir (T-705), remdesivir, oseltamivir, Chloroquine, and Interferon). Most importantly, unselective or inappropriate administration of antibiotics should be avoided. Moreover, corticosteroids treatment should not be given for the treatment of SARS-Cov2. Convalescent plasma can be used

to help people recover from viral infection without the occurrence of severe adverse events (Ouassou et.al.,2020).

2.13.1.COVID-19 vaccines :

COVID 19 vaccine is a vaccine intended to provide acquired immunity against severe acute respiratory syndrome coronavirus 2 (SARS CoV 2), the virus causing coronavirus disease 2019 (COVID 19)

(Yen-Der et.al.,2020).

Vaccines are needed to protect from SARS-CoV-2, the virus causing COVID-19. Vaccines that induce large quantities of high affinity virus-neutralizing antibodies may optimally prevent infection and avoid unfavorable effects. Vaccination trials require precise clinical management, complemented with detailed evaluation of safety and immune responses .

2.13.2.Vaccine Development

Vaccine development has started at a strongly accelerated pace already, shortly after the beginning of the SARS-CoV-2 outbreak. At the time of finalizing this review, there are already more than twenty vaccines being tested in clinical trials. The WHO is publishing a regularly updated list of the vaccines in development. As a specialist in the advance of epidemic vaccines, CEPI has organized a global consultation committee which helped to launch the COVID-19 Vaccine Development Taskforce, focusing on vaccine manufacturing and financing, in collaboration with GAVI and the World Bank . Very useful comments on COVID-19 vaccines are regularly published in the scientific literature. The knowledge gained through previous coronavirus outbreaks provides a favorable scientific basis for vaccine design.Vaccines can be based on whole viruses (live-attenuated or inactivated), viral vectors, nanoparticles or virus-like

particles, subunit components, proteins/peptides, RNA, DNA or live cells. The first vaccine trial against COVID-19 was started in China on February 15, 2020 , using dendritic cells that are genetically modified with structural and enzymatic proteins of SARS-CoV-2. A second trial, also in China, was done with a similar vaccine, complemented by the infusion of antigen-specific T cells (Daniel and Martin.,2020).

Table (1) : **vaccine type**

Product	Authorized age groups
Pfizer-BioNTech COVID-19 Vaccine	16 years of age and older
Moderna COVID-19 Vaccine	18 years of age and older
Janssen COVID-19 Vaccine (Johnson & Johnson)	18 years of age and older

Table : Does of covid19 vaccine

Vaccine	NUMBER OF DOSES/SERIES	INTERVAL BETWEEN DOSES
Pfizer-BioNTech COVID-19 Vaccine	2	21 days
Moderna COVID-19 Vaccine	2	28 days
Janssen COVID-19 Vaccine	1	N/A

COVID-19 Vaccine Components*

Description	Pfizer-BioNTech mRNA COVID-19 Vaccine	Moderna mRNA COVID-19 Vaccine	Janssen COVID-19 Vaccine
Active ingredients	Nucleoside-modified mRNA encoding the viral spike (S) glycoprotein of SARS-CoV-2	Nucleoside-modified mRNA encoding the viral spike (S) glycoprotein of SARS-CoV-2	Viral Vector; Recombinant, replication-incompetent Ad26 vector, encoding a stabilized variant of the SARS-CoV-2 Spike (S) protein
Inactive ingredients	2[(polyethylene glycol (PEG))-2000]-N, N-ditetradecylacetamide	PEG2000-DMG: 1,2-dimyristoyl-rac-glycerol, methoxypolyethylene glycol	Polysorbate-80
	1,2-distearoyl-sn-glycero-3-phosphocholine	1,2-distearoyl-sn-glycero-3-phosphocholine	2-hydroxypropyl-β-cyclodextrin (HBCD)
	Cholesterol	Cholesterol	Citric acid monohydrate
	(4-hydroxybutyl)azanediyl)bis(hexane-6,1-diyl)bis(2-hexyldecanoate)	SM-102: heptadecan-9-yl 8-((2-hydroxyethyl) (6-oxo-6-(undecyloxy) hexyl) amino) octanoate	Trisodium citrate dihydrate
	Sodium chloride	Tromethamine	Sodium chloride
	Monobasic potassium phosphate	Tromethamine hydrochloride	Sodium hydroxide
	Potassium chloride	Acetic acid	Hydrochloric acid
	Dibasic sodium phosphate dihydrate	Sodium acetate	Ethanol
	Sucrose	Sucrose	Water for injection

Figure(9): COVID-19 Vaccine Components (CDC.,2021).

2.13.3.Duration of protection

As COVID-19 vaccines have only been given in clinical trials in recent months, there is currently no data available to describe how long protection from vaccination will last. Post-authorisation surveillance and continued follow-up of trial participants may indicate the need for booster doses but they are not currently recommended (Public Health England.,2021).

2.14.Prevention

SARS-CoV-2 has unique properties that make preventing it complicated. SARS-CoV-2 can cause an asymptomatic infection, and it can be transmitted during the incubation period and after clinical recovery. Many governments, at the beginning of March 2020, adopted strict containment and self-isolation measures to limit the spread of the virus.

An intense public health response by many countries began after the pandemic was declared and included many strategies: city closures and mass quarantines, social distancing mandates, school closures, cancellation of public gatherings, reduced domestic and international flights, development of environmental measures and personal protection measures (Matteo et.al.,2020).

The measures to be taken are:

• Blocking all trips to and from all areas defined as "red", in which cases of COVID-19 infections have already been ascertained.

• Possible 14-day home quarantine for those who live, work or return from these areas.

• Selective control and measurement of body temperature of all suppliers and external collaborators.

• Reduction of the number of operators within each confined environment.

• Prioritize, where possible, work from home (smart working).

• Composing, if possible, two or more closed and independent working groups, to be alternated every 14 days to work in the company or in smart working.(Luigi et al.,2020)

Prevention tips:

Wash your hands frequently for at least 20 seconds at a time with warm water and soap. .and Don't touch your face, eyes, nose, or mouth when your hands are dirty. Don't go out if you're feeling sick or have any cold or flu symptoms. Stay at least 6 feet (2 meters) away from people. Avoid crowds and large gatherings ,Cover your mouth with a tissue or the inside of your elbow whenever you sneeze or cough. Throw away any tissues you

use right away. Wear a mask or face covering in public places. And Cover your mouth and nose with a mask when you are around (Cameron .,2021).

2.15.impact Novel coronavirus COVID-19 economic development

The world has been gripped by a pandemic over the first half of 2020. It was identified as a new coronavirus (severe acute respiratory syndrome coronavirus 2, or SARS-CoV-2), and laternamed as Coronavirus Disease-19 or COVID-19 . While COVID-19 originated in the city of Wuhan in the Hubei province of China, it has spread rapidly across the world, resulting in a human tragedy and tremendous economic damage. By mid-June, there had been over 8 million cases of COVID-19 globally, with over 436,000 deaths. Given the rapid spread of COVID-19, countries across the World have adopted several public health measures intended to prevent its spread (Abel Brodeur et.al.,2020).

The outbreak of coronavirus named COVID-19 has disrupted the developing countries economy highly. According to World Health Organization (WHO) there have been 4,660,658 confirmed cases of COVID 19, including 309,710 death till May 16, 2020 globally. And 78,280 Confirmed cases and 2,624 Number of deaths in Africa. Data for the study was generated from desk review of secondary materials, online blogs and interview through social media chat. Findings of the study reveal that the outbreak and spread of covid-19 disease led to rapid shutdowns in cities and states across the country, which greatly affected the economic development (Eprhem .,2020).

Mandatory mitigation measures may exacerbate the economic impact of the pandemic, at least in the short run, by halting some activities,

in particular those requiring face-to-face interaction. However, if most of these activities are already disrupted by voluntary behavior of consumers and workers that do not consume certain goods and services and perform certain tasks for the fear of contagion .then the additional damage of coercive policies may be negligible. Similarly, if these policies are established but compliance is low, their impact may be limited (Sophia .,2020).

The extended lockdowns pose the socioeconomic risk of irreversible closure of businesses, with the attendant ripple effects. Travel restrictions remain (International Air Transport Association 2020), causing airlines to incur losses. Tourism intensive economies have experienced increasing unemployment resulting from the decline in tourism demand (United Nations Conference on Trade and Development 2020). Commercial establishments have observed mandatory closures during the lockdown period. Limited availability of public transportation services has caused mobility and accessibility problems for consumers and workers alike (Krista et.al,.2020).

2.16.Previous studies:

Several studies that similar to our study have been showed different results , for example, Alreshidi her study about Assessment of Saudi nurses' knowledge, attitude and anxiety towards COVID19 during the current outbreak in KSA ,July 2020.

Methods A cross-sectional survey based study was conducted in the month of June for the nurses working in the KSA Government based hospital. 527 nurses were recruited in this study. Participants knowledge was determined using correct or incorrect or do not know format. The

attitude and anxiety level were determined using the 4 and 5 points Likert scale.

Results The nurse-respondents for this study were pretty experienced with majority of them having more than 10 years of experience. They also exhibited a cooperative attitude towards fighting the virus and many have adapted an open learning attitude especially that COVID-19 is a new pathogen. Moreover, the nurses' knowledge about COVID-19 is the same information that the public health arm of the government has informed the public about. The nurses do not believe that the virus came from a plant and that a vaccine is already available against the virus. Furthermore, the two major reasons causing the most anxiety among the nurses is finding out that they are COVID-19 positive and having to be placed in an isolation ward. They are also anxious about the government's capability to fight the battle against the virus and the availability of resources to continue this protracted fight against this virus.

Conclusion To effectively control Coronavirus infection, it is essential to assess knowledge, attitude and anxiety of nurses working with Coronavirus patients. Based on knowledge of nurses about the COVID 19, effective education and training should be provided to the nurses. Self-reported attitude and anxiety of nurses about COVID 19 could be helpful in providing specific intervention to the nurse.

The second Study by Marzieh Nemati and et.al about Assessment of Iranian Nurses' Knowledge and Anxiety Toward COVID-19 During the Current Outbreak in Iran ,March 2020.
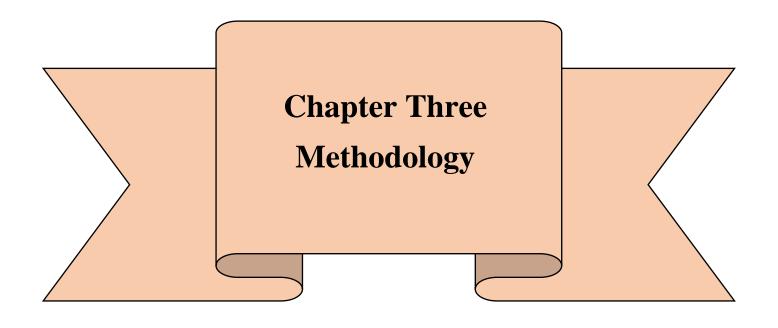
This study aimed to measure the awareness level of nurses in Shiraz, Iran, during the current COVID-19 outbreak. Methods: A self-administered questionnaire containing knowledge questions was

distributed to 85 participants to complete. Results: More than half of the nurses (56.5%) had good knowledge about sources, transmission, symptoms, signs, prognosis, treatment, and mortality rate of COVID-19. The sources of information for the nurses were the World Health Organization and the Ministry of Health (55.29%), social applications (48.23%), and media (42.35%). Conclusions: Nurses had almost good knowledge of COVID-19. However, the WHO and the Ministry of Health still must provide more information for the medical staff for better control of the infectious disease.

The last study by Emy Darma Yanti and et.al about Nurses Knowledge and Perception Regarding Personal Protective Equipment while Caring for Patients with Covid-19 Jurnal Keperawatan 13 (1), 213-226, 2021. Coronavirus Disease 2019 (Covid-19) is a respiratory tract infection caused by coronavirus and currently considered as a global health problem. Nurses as health care workers who provide direct care for patients with Covid-19 in hospitals are at high risk of transmission of infection if they do not compliance with the guidance to use Personal Protective Equipment (PPE) correctly and safely.

This study was conducted to identify the knowledge and perception of nurses regarding PPE when caring for patients with Covid-19 in Bali. This quantitative study used descriptive analytic design on 193 nurses in Bali which were collected through survey by using purposive sampling technique. Data were collected using a questionnaire and analyzed using a frequency distribution. Results showed that the majority of nurses' knowledge regarding PPE were poor (68, 9%) however nurses' perception regarding PPE when caring for patients with Covid-19 were mostly good (62, 7%). This study could not involve all nurses at the Covid-19 referral

hospital in Bali. Several Covid-19 referral hospitals in Bali did not allow this research to be carried out because they considered this a sensitive issue.

Chapter Three

Methodology

Methodology

This chapter presents the research design which is used in this study: administrative arrangements, setting of the study, sample selection, study instruments, methods of data collection, statistical data analysis and limitations of study.

3.1 Design of the Study:

A descriptive design is carried throughout the present for the period from 29th, December 2020 until, 2021 10th July to Evaluation of Nurses' Knowledge toward patients with covid - 19 at health care center in Al-Amara city, Iraq.

3.2 Administrative Arrangements:

We submitted a request to the deanship of the college of nursing concerning of address Al-Sadder Teaching Hospital about facilitating the task of collecting samples, where the deanship issued a letter to the Al-Sadder Teaching Hospital entitled facilitation of the task of researchers to collect samples. **(Appendix A)**

3.3 Setting of the Study:

The Setting of the study involves Al- Sader Teaching Hospital and Qalat Saleh General Hospital and Misan center for Heart Disease and surgery .

3.4 sample of the study :

A purposive non probability sample of (100) nurses collected the(73) nurses from Al-sader Teaching Hospital and(20) nurses from Qalat Salah General Hospital and (7) nurses from Misan center for Heart disease and surgery.

3.5. The Study Instrument:

Through comprehensive review of relevant literature, a questionnaire is constructed by the researchers for the purpose of the study. It is comprised of two parts: first part (6) items which are concerned with nurses demographic characteristics and the second part is comprised of (20) items which are concerned with Nurses Knowledge Toward Coronavirus patients and how to provide nursing care **(Appendix B)**

as following :

Part I: Demographic Characteristics:

The first part is concerned with determination of the demographic characteristics of these nurses, through designated sheet, that include (6) items: age, sex, level of education, Place of work, Number of years of experience and Duration of work at the Covid-19 Center.

Part II: The Questionnaire Sheet for Evaluation of Nurses' Knowledge toward patients with covid - 19 :

These questions have been constructed to Evaluation of Nurses' Knowledge toward patients with covid - 19 . It comprises one section :

It consist of (20) items concerned with To assess the nurses 'knowledge about Covid-19 patients and provide them with health care, and their knowledge about providing protection to people at risk. The items and their grades were classified according to the following pattern (1) I know (2) I am not sure (3) I don't know.

3.6. Validity of the Questionnaire:

Content validity of the questionnaire has been determined through the use of panel of experts, to investigate the content of the questionnaire

for clarity and adequacy in order to achieve the present study objectives. preliminary questionnaire designed to collect the data, to be presented to has been (3) experts in order to determine validity. These experts have been asked to review the questionnaire relative to their responses all of them have agreed on the content and structure of the questionnaire, and the change makes according to their suggestions **(Appendix C).**

3.7 Methods of Data Collection:

After permission was obtained from Al-sader teaching Hospital and Qalat Salah general Hospital and Misan center for Heart Disease and surgery The data were collected for the original study through applying a constructed questionnaire format and interview technique as mean of data collection. Data collection was initiated on 11th January 2021 to 10th February 2021.

3.8. Statistical Data Analysis:

The data of the present study are analyzed through the use of statistical package of social sciences (SPSS) version 21. The following statistical data analysis approaches have been used through.

3.8. 1-Descriptive Data Analysis:

This approach is performed through computation of the following :

1. Frequencies (F)

2. Percentage (%).

3.8.2-Inferential Statistic Data Analysis:

Analysis: This approach is performed through the computation of the following:

chi-square test(x) :

is used to determine the significant association between the nurses demographic and Evaluation of Nurses' Knowledge toward patients with covid - 19 $P<0.05$ for significance and $P>0.05$ for no significance.

3.9. Pilot Study:

A pilot study was conducted on samples of (10) nurse who were excluded from the study sample to determine the reliability of the questionnaire and to achieve the following:

3.9.1. Obtaining the clarity and the content adequacy of the questionnaire.

3.9.2. Estimating the time required for the data collection.

3.9.3. Identifying the barriers that may be encountered during the data collection process.
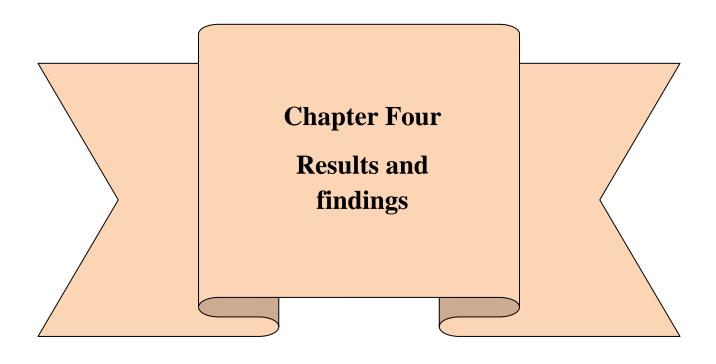
3.10. Reliability of the Questionnaire :

Reliability is concerned with the consistency of the research instrument. Determination of reliability of the questionnaire is based on Cronbach's Alpha correlation coefficient (r= 0.87) The finding of the pilot study indicates that the instrument is adequately reliable for the present study.

3.11 Limitations of the study:

The present study has experienced the following limitations:

1- Some nurses refused of participate in the study.

2.The lack of research and studies related to this study.

Chapter Four

Results and findings

Results and Findings

This chapter presents the findings of the data analysis systematically in tables and these correspond with the objectives of the study as follows:

Table (3): Distribution of the nurses by their demographic data

No.	Variables	Characteristics	F	%
1.	Age (year)	19-23	19	19.0
		24-28	36	36.0
		29-33	15	15.0
		34-38	14	14.0
		39-43	12	12.0
		≥ 44	4	4.0
		Total	100	100.0
		$\bar{x} \mp \text{Std. Dev.}$	29.95 ± 8.048	
2.	Gender	Male	60	60.0
		Female	40	40.0
		Total	100	100.0
3.	Level of Education	Secondary School Nursing	25	25.0
		Diploma in Nursing	56	56.0
		Bachelor in Nursing	18	18.0
		Master Degree in Nursing	1	1.0
		Total	100	100.0
4.	Work Place	Al-Sadr Teaching Hospital	73	73.0
		Misan Center for Heart Diseases and Surgery	7	7.0
		Qalat Saleh General Hospital	20	20.0
		Total	100	100.0
5.	Years of Experience	1-5 years	56	56.0
		6-10 years	23	23.0
		11-15 years	8	8.0
		16-20 years	7	7.0
		≥ 21 years	6	6.0
		Total	100	100.0
		$\bar{x} \mp \text{Std. Dev.}$	7.65 ± 7.828	
6.	Duration of work at the Covid-19 Center	1month	31	31.0
		2 month	13	13.0
		3 month	12	12.0
		4 month	7	7.0

		5 month	1	1.0
		9 month	36	36.0
		Total	**40**	**100.0**

No. = number of Variable , F= Frequencies , % = Percentages, Arithmetic Mean (x‾) and Std. Dev.= Standard. Deviation.

The results of this table show that the more of one-third of age group in the study sample were within (24-28 years) it presented (36%) with arithmetic mean and standard deviation (**29.95 ± 8.048**). The above table also shows that the more half of participants (60%) were male. Also in regarding to the subjects level of education, the results show that half of them has diploma in nursing (56%). In addition, years of experience more than half of nurses (56%) has (1-5 years) in the service. Addition, duration of work at the Covid-19 one-third of participants have (9 months) as their percentage reached (36%). Work place of participants in study sample the majority were in Al-sadder teaching hospital (73%).

Table (4): Evaluation knowledge toward patients with Covid- 19 at health care center in Al-Amara city

No	Items	I agree		I don't agree		Unsure		M.S.	S.D.	Ass.
		F	%	F	%	F	%			
1	The period of quarantine for the patient ranges from(2-14) days	86	86.0	9	9.0	5	5.0	**2.81**	0.506	H
2	The importance of giving vitamins to the affected person to support the immune system	97	97.0	1	1.0	2	2.0	**2.95**	0.297	H
3	Wearing a mask protects against infection	93	93.0	4	4.0	3	3.0	**2.90**	0.389	H
4	People infected with the virus need an increase in oxygen saturation if decrease75%	89	89.0	5	5.0	6	6.0	**2.83**	0.514	H
5	The main method of transmission is through the respiratory tract spray	91	91.0	2	2.0	7	7.0	**2.84**	0.526	H
6	The person suspected of being infected with Coronavirus is isolated until the result is shown	95	95.0	2	2.0	3	3.0	**2.92**	0.367	H
7	The ideal distance to prevent cross-infection from one person to another is 1.5 meters	69	69.0	15	15.0	16	16.0	**2.53**	0.758	H
8	Coronavirus infection leads to complications, including asthma	56	56.0	21	21.0	23	23.0	**2.33**	0.829	H
9	The appropriate position for the affected person is to lie on the abdomen	39	39.0	33	33.0	28	28.0	**2.11**	0.815	M
10	The most common symptoms for an individual are fever and cough	81	81.0	8	8.0	11	11.0	**2.70**	0.659	H
11	Infected people transmit the virus less than others	40	40.0	40	40.0	20	20.0	**2.20**	0.752	M
12	Giving heparin to Corona patients	53	53.0	24	24.0	23	23.0	**2.30**	0.823	M
13	The patient becomes non-transmissible after (7-10) days from the onset of symptoms	30	30.0	37	37.0	33	33.0	**1.97**	0.797	M
14	Young people are more susceptible to contracting the virus because they are more active in public places	57	57.0	33	33.0	10	10.0	**2.47**	0.674	H
15	Fear of illness increases the likelihood that the patient will have symptoms that are more severe than others	86	86.0	10	10.0	4	4.0	**2.82**	0.479	H
16	Do you think that the vaccines produced contribute to protection from infection with the virus?	37	37.0	26	26.0	37	37.0	**2.00**	0.865	M
17	Giving the infected person an antibiotic due to the possibility of concomitant bacterial infection	78	78.0	5	5.0	17	17.0	**2.61**	0.764	H
18	Infection with the virus may lead to kidney failure	66	66.0	16	16.0	18	18.0	**2.48**	0.785	H
19	Hands should be washed with soap and water within 60 seconds after contact with each patient	92	92.0	4	4.0	4	4.0	**2.88**	0.433	H
20	Patient vital signs should be measured every 4 hours	88	88.0	6	6.0	6	6.0	**2.82**	0.520	H

No. = number of item , F=frequencies , % = Percentages, M.S.= mean of score. Ass.= assessment; assessment levels : (1.00-1.67) = Low; (1.68-2.33) = Moderate; (2.34-3.00) = High.

Table (4) reveals that there are high level of arithmetic mean in all items related to assessment of nurses' knowledge regarding patients with Covid- 19 at health care center at the study sample, except items (9, 11,12,13,&16) show that moderate level of arithmetic mean.

Table (5): Overall Evaluation knowledge regarding toward patients with Covid- 19 at health care center

Levels of Assessment	Frequency	Percent
Low: (1 - 1.67)	0	0.0
Moderate: (1.68 - 2.33)	13	13.0
High: (2.34 - 3.00)	87	87.0
Total	100	100.0
$\bar{x} \mp$ Std. Dev	2.57 ± 0.246	

Arithmetic Mean (x‾) and Std. Dev.= Standard. Deviation.

This table reveals that the majority of participants have a high level of nurses' knowledge toward patients with Covid- 19 at health care center at the study sample (n=40; 38(95%).

Table (6): Association between the nurses' knowledge and their ages

Age (year)		Nurses' Knowledge			Total
		I agree	I don't agree	Uncertain	
19-23	F	273	54	53	380
	%	13.6%	2.7%	2.6%	19.0%
24-28	F	469	121	130	720
	%	23.4%	6.0%	6.5%	36.0%
29-33	F	227	33	40	300
	%	11.4%	1.6%	2.0%	15.0%
34-38	F	214	43	23	280
	%	10.7%	2.2%	1.2%	14.0%
39-43	F	180	34	26	240
	%	9.0%	1.7%	1.3%	12.0%
≥ 44	F	60	16	4	80
	%	3.0%	0.8%	0.2%	4.0%
Total	F	1423	301	276	2000
	%	71.2%	15.0%	13.8%	100.0%

χ^2obs.= 34.524	χ^2crit. =18.13	df=10	P < 0.01	p value=0. 000

F= Frequencies , % = Percentages, χ^2obs. = chi-square observed, χ^2crit = chi-square critical , df= degree of freedom, p = probability value, P < 0.01=High significant,

Table (6) indicates that there was a highly significant relationship between nurses' knowledge regarding patients with covid-19 at health care center and their age at (P < 0.01), when analyzed by chi-square test.

Table (7): Association between the nurses' knowledge and their gender

Gender		Nurses' knowledge			Total
		I agree	I don't agree	Uncertain	
Male	F	868	178	154	1200
	%	43.4%	8.9%	7.7%	60.0%
Female	F	555	123	122	800
	%	27.8%	6.2%	6.1%	40.0%
Total	F	1423	301	276	2000
	%	71.2%	15.0%	13.8%	100.0%
χ^2obs.= 2.715	χ^2crit. =5.99	df=2	P > 0.05	p-value=0. 257	

F= Frequencies, % = Percentages, χ^2obs. = chi-square observed, χ^2crit = chi-square critical, df= degree of freedom, p = probability value, P > 0.05= non-significant.

The data analysis presented in table (7) shows that there was no a significant relationship between nurses' knowledge regarding patients with covid-19 and their gender at (P > 0.05), when analyzed by chi-square test.

Table (8): Association between the nurses' knowledge and their educational level

Level of educational		Nurses' knowledge			Total
		I agree	I don't agree	Uncertain	
Secondary School Nursing	F	358	82	60	500
	%	17.9%	4.1%	3.0%	25.0%
Diploma in Nursing	F	805	160	155	1120

	%	40.2%	8.0%	7.8%	56.0%
Bachelor in Nursing	**F**	246	55	59	360
	%	12.3%	2.8%	3.0%	18.0%
Master Degree in Nursing	**F**	14	4	2	20
	%	0.7%	0.2%	0.1%	1.0%
Total	**F**	1423	301	276	2000
	%	71.2%	15.0%	13.8%	100.0%

χ^2obs.= 5.013 χ^2crit. =12.59   df=6   P > 0.05   p value=0.542

F= Frequencies , % = Percentages, χ^2obs. = chi-square observed, χ^2crit = chi-square critical , df= degree of freedom, p = probability value, P > 0.05= non-significant.

The findings in table (8) revealed that there was a non-significant relationship between nurses' knowledge regarding patients with covid-19 and their educational level at (P > 0.05),when analyzed by chi-square test.

Table (9): Association between the nurses' knowledge and their work Place

Work Place		Nurses' knowledge			Total
		I agree	**I don't agree**	**Uncertain**	
Al-Sadr Teaching Hospital	**F**	1052	228	180	1460
	%	52.6%	11.4%	9.0%	73.0%
Misan Center for Heart Diseases and Surgery	**F**	93	19	28	140
	%	4.6%	1.0%	1.4%	7.0%
Qalat Saleh General Hospital	**F**	278	54	68	400
	%	13.9%	2.7%	3.4%	20.0%
Total	**F**	1423	301	276	2000
	%	71.2%	15.0%	13.8%	100.0%

χ^2obs.= 11.071 χ^2crit. =9.49   df=4   P < 0.05   p value=0.026

F= Frequencies , % = Percentages, χ^2obs. = chi-square observed, χ^2crit = chi-square critical , df= degree of freedom, p = probability value, P < 0.05= Significant.

48

The findings in table (9) revealed that there was a significant relationship between nurses' knowledge regarding patients with covid-19 and their work place at (P < 0.05),when analyzed by chi-square test.

Table (10): Association between the nurses' knowledge and their years' experience

Years' Experience		Nurses' knowledge			Total
		I agree	I don't agree	Uncertain	
1-5	F	771	169	180	1120
	%	38.6%	8.4%	9.0%	56.0%
6-10	F	340	69	51	460
	%	17.0%	3.4%	2.6%	23.0%
11-15	F	116	25	19	160
	%	5.8%	1.2%	1.0%	8.0%
16-20	F	106	20	14	140
	%	5.3%	1.0%	0.7%	7.0%
≥ 21	F	90	18	12	120
	%	4.5%	0.9%	0.6%	6.0%
Total	F	1423	301	276	2000
	%	71.2%	15.0%	13.8%	100.0%
χ^2obs.= 11.918 χ^2crit. =15.51 df=8 P > 0.05 P value=0. 155					

F= Frequencies , % = Percentages , χ^2obs. = chi-square observed, χ^2crit = chi-square critical , df= degree of freedom, p = probability value, P > 0.05= non-significant

The results of data analysis, as presented in table (10) revealed that there was not a significant relationship between years of experience and their nurses' knowledge regarding patients with covid-19 at (P > 0.05), when analyzed by chi-square test.
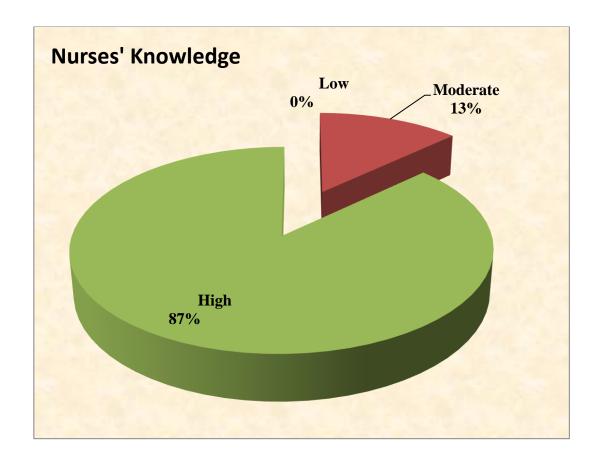
.

Table (11): Association between the nurses' knowledge and their duration of work at the covid-19 center s

Duration of work at the Covid-19 Center		Nurses' knowledge			Total
		I agree	I don't agree	Uncertain	
1 month	F	408	107	105	620
	%	20.4%	5.4%	5.2%	31.0%
2 month	F	199	44	17	260
	%	10.0%	2.2%	0.8%	13.0%
3 month	F	173	36	31	240
	%	8.6%	1.8%	1.6%	12.0%
4 month	F	114	17	9	140
	%	5.7%	0.8%	0.4%	7.0%
5 month	F	14	3	3	20
	%	0.7%	0.2%	0.2%	1.0%
9 month	F	515	94	111	720
	%	25.8%	4.7%	5.6%	36.0%
Total	F	1423	301	276	2000
	%	71.2%	15.0%	13.8%	100.0%

χ^2obs.= 32.364 χ^2crit. =18.13   df=10   P < 0.01   p value=0.000
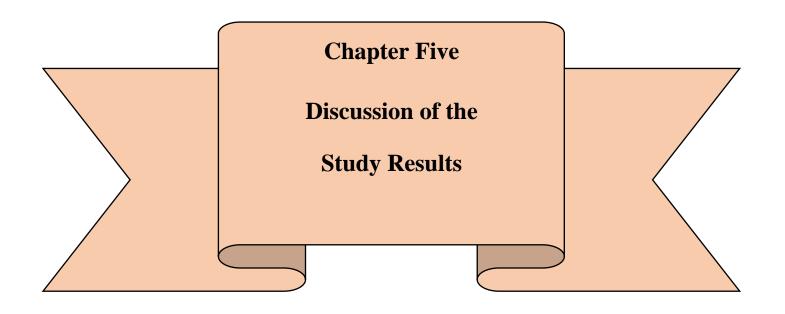
F= Frequencies , % = Percentages, χ^2obs. = chi-square observed, χ^2crit = chi-square critical , df= degree of freedom, p = probability value, P < 0.01= High significant,

The table (11) indicates that there is a highly significant relationship between nurses' knowledge toward patients with covid-19 and their duration of work at the covid-19 center at (P < 0.01), when analyzed by chi-square test.

Figure (10): Pie chart illustrate levels of nurses' knowledge regarding patients with covid-19

This figure is show that the majority of participants have a high level of nurses' knowledge regarding patients with covid-19 at the study sample.

Chapter Five

Discussion of the

Study Results

Discussion of the Study Results

This chapter presents a systematically organized observation and reasonably derived discussion from the results, with the support of the available literature and related studies.

5.1.Discussion of Demographic Characteristics of the Sample (table3):-

According to the data analysis, the findings of the current study indicated that the majority of the participant 36 % was (24 - 28) years old. This result agrees with a study conducted by (AlReshidi ,2020) who found that the majority of the participants (44.2%) were (21-30) years old .There is another study in agreement with this study, was conducted by (Wahed, et.al.,2020) who found that the majority of the participants (35.6%) were (20-29) years old.

Regarding sex, majority of samples in this study were male (60%), and this result agrees with a study conducted by (Alwani et.al., 2020). who found that the majority of the participants (51.28%) were males.There is another study in agreement with this study, which was conducted by (Al Sulayyim et.al.,2020) who found that majority of the respondents were male (61.2%).

Relative to level of education majority of samples in this study showed that most of samples were nurses (56%) with diploma and this agree with study conducted by (Alsharif ,2021) who found that the majority of samples had diploma (55.2%).

In addition , majority of nurses in this study have years of experience ranged (1-5 years) which form (56%) , this result agreed with a study conducted by (Marwa et.al.,2020). who found that majority of samples had (1 – 5 years) which form (45.7%). There is another study in agreement with our study, which was conducted by (Giao et.al.,2020) who found that majority of samples had less than 5 years experience (62.9%).

Finally, regarding the duration of work in the COVID-19 center in this study, the results showed that the higher duration of work was 9 months of 36%.The percentage of work duration has also reached 31% for a 1month.

5.2. Discussion of participants' Evaluation knowledge toward patients with Covid- 19 at health care center in Al-Amara city   (table 4) :-

Table (4) revealed that there was high level of arithmetic mean in all items related to assessment of nurses' knowledge regarding patients with Covid- 19 at health care centers of the study samples, except items (9, 11,12,13,&16) which showed that there was a moderate level of arithmetic mean.The results of this study were consistent with the previous study conducted in Saudi Arabia, which stated that nurses have sufficient knowledge about COVID-19, 95 % and said that 2-14 days is the incubation period of this was Consistent with the study conducted by (AL Sharif ,2021).

5.2.1.Overall Evaluation of nurses' knowledge toward patients with Covid- 19 at health care center (table 5) .

This table reveals that the majority of participants have a high level of nurses' knowledge toward dealing with patients with Covid- 19 at health

care centers at the study samples which were (87%) while level of moderate were (13%) of samples. These results are consistent with the study made by (Farah et.al.,2021). Who mentioned in their results that the majority of HCPs recorded have a high level of knowledge by percentage of 85%. There is another study in agreement with this study, which was conducted by (Giao et.al.,2020) who found that the majority of healthcare workers had high level of knowledge (88.4%).

5.3. Discussion of association between Nurse's knowledge and their demographic characteristics.

5.3.1. Association between the nurses' knowledge and their ages:

Our study indicates that there was a highly significant relationship between nurses' knowledge regarding patients with covid-19 at health care center and their age at ($P < 0.01$). This result agreed with a study conducted by (Roupa et.al.,2021) who mentioned in their results that there were statistically significant difference between the overall knowledge with age and showed participants over 40 years of age had a significantly higher score, indicating greater specific knowledge, compared to participants who were between the age of 18–29 years old ($p = 0,050$).

5.3.2. Association between the nurses' knowledge and their gender:

Our study shows that there was no significant relationship between nurses' knowledge regarding patients with covid-19 and their gender at ($P > 0.05$), This result agreed with a study conducted by Wafaa Yousif Abdel (Wahed et.al.,2020) who stated that no significant association between gender and level of knowledge recorded and almost similar knowledge mean scores were observed for male and female participants (18.68 ± 2.89 and 18.24 ± 2.56, respectively) with no statistically significant difference.

5.3.3.Association between the nurses' knowledge and their educational level:

Our study shows that there was a non-significant relationship between nurses' knowledge regarding patients with covid-19 and their educational level at (P > 0.05). This result agreed with a study conducted by Dil K. Limbu, et.al. (2020) who reported no significant association between educational level and level of knowledge. There was also a disagreement between our study and a study conducted by (Al-Dossary et.al.,2020) who reported that there were statistically significant that nurses with a bachelor's degree had better level of knowledge towards COVID-19 compared to other educational backgrounds.

5.3.4.Association between the nurses' knowledge and their work Place:

Concerning the workplace a significant association between workplace and level of knowledge has been recognized and this result agrees with a study conducted by (Wen, et.al.,2021) who mentioned that there was a significant statistically association between workplace and the level of knowledge.
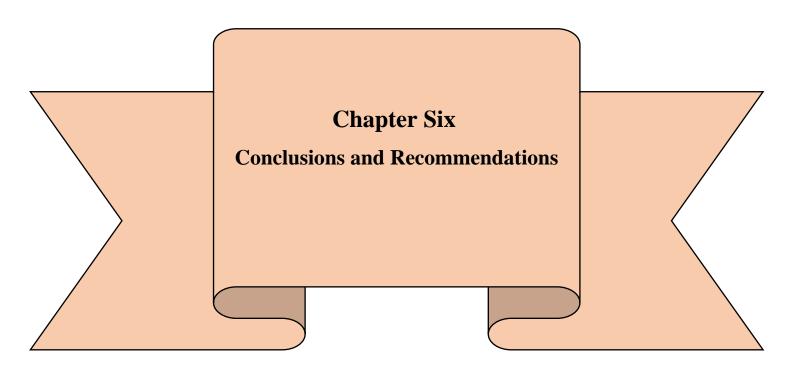
5.3.5. Association between the nurses' knowledge and their years of experience:

In regard to years of experience our study shows that there was non-significant relationship between years of experience and their nurses' knowledge regarding patients with covid-19 at (P > 0.05) and this result agrees with a study conducted by (Nemati, et.al.,2020) who showed no significant association between years of experience and the level of knowledge. Also result of our study disagrees with a study conducted by

(Vatan et.al., 2020) who stated that the nurse's knowledge varied significantly according to work experience. Participants with less than 10 years of experience had significantly more wrong answers than those with more than 10 years of experience (p < 0.001).

5.3.6.Association between the nurses' knowledge and their duration of work at the covid-19 center's:

Finally, in concerning duration of work and nurse's knowledge, The table (11) indicates there was a highly significant association between nurse's knowledge toward patients with covid-19 and their duration of work at the covid-19 center at (P < 0.01), when analyzed by chi-square test. Our study showed that the participants who worked for 9 months had a higher level of knowledge compared to the others. And the more experience Knowledge increased And this is reasonable if we know that most of experience comes from long time of work and contact with patients and their health issues and when sharing information with many experts in the field of infectious diseases prevention.

Chapter Six

Conclusions and Recommendations

Conclusions and Recommendations

6.1. Conclusions:
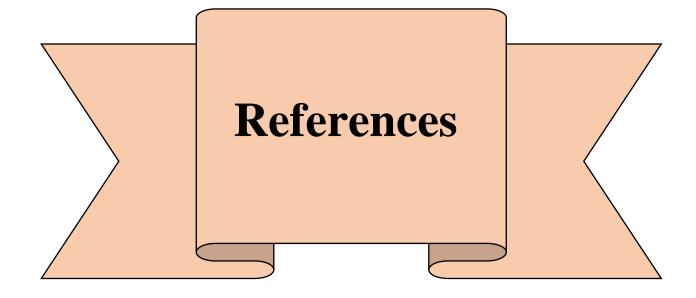
Here are the conclusions of the present study:

1. The result of our study show that the majority of participants in the study sample were within (24- 28) years old. The male to female ratio of participants was 60/ 40. Relative to level of education majority of samples in this study showed that most of them were nurse (56%) with diploma . As for the number of years of experience, more than a half of nurses have (1-5 years) in the service. Finally the duration of work at the covid19, on-third of participants have (9 months).

2. the study concluded that most of the participants have a high level of knowledge about COVID-19.

3. The study showed a high significant correlation between nurses' knowledge and their age, work place and duration of work at the covid-19 center. But that there was not significant association between nurse's knowledge and their gender, level of education and years of experience.

6.2.Recommendations

Based on the conclusions, the present study recommends the following:

1- It is recommended that a plan for nursing forces be made for investing in nurses, as they make up the largest healthcare group and are very important healthcare workers who have very clear and significant roles.

2- It is recommended that nurses respond effectively to the pandemic and that all medical supplies be available, such as PPE, to help keep the lives of nurses and patients safe.

3- More research is required on the exploration of the experiences of nurses, and more research on pandemic crises involving preparedness, responsiveness, and recovery in general; more studies must focus on nurses' levels of knowledge, preparedness, and risk perception, which affects their adherence to precautionary behaviors, as these are critical issues in the context of epidemics with no treatment.

4- Holding health education programs about COVID-19 which are beneficial and essential to overcome the disease.

5- Continuous emphasis on preventive measures.

6- More information must be provided by the World Health Organization and the Ministry of Health to medical staff to mediate better control of infectious diseases.

7- We advise follow-up researches including teaching and non-teaching hospitals all over the country.

References

References

❖ **المصادر العربية**

• القرآن الكريم –سورة المجادلة –الآية (١١).

❖ **English reference:**

1. Adhikari, S. P., Meng, S., Wu, Y., Mao, Y., Ye, R., Wang, Q., ... & Zhou, H. (2020). A literature review of 2019 Novel Coronavirus during the early outbreak period: Epidemiology, causes, clinical manifestation and diagnosis, prevention and control.

2. Al Reshidi, N. M. (2003). Assessment of Saudi nurses' knowledge, attitude and anxiety towards Covid-19 during the current outbreak in KSA. *IOSR Journal of Nursing and Health Science (IOSR-JNHS) e-ISSN*, 2320-1959.

3. Al Sulayyim, H. J., Al-Noaemi, M. C., Rajab, S. M., Daghriri, H. A., Al Yami, S. M., Al-Rashah, A. S., ... & Al Salom, M. H. (2020). An assessment of healthcare workers knowledge about COVID-19. *Open Journal of Epidemiology*, *10*(03), 220.

4. Al-Dossary, R., Alamri, M., Albaqawi, H., Al Hosis, K., Aljeldah, M., Aljohan, M., ... & Almazan, J. (2020). Awareness, attitudes, prevention, and perceptions of COVID-19 outbreak among nurses in Saudi Arabia. *International journal of environmental research and public health*, *17*(21), 8269.

5. AL-Kaabi, H. J. A., Mohammed, H. A., & Kumait, A. (2020). Assessing Knowledge and Perceptions of Health Care Workers toward Novel Coronavirus (COVID-19). Medico Legal Update, 20(4), 2023-2030.

References

6. Al-Malkey, M. K., & Al-Sammak, M. A. (2020). Incidence of the COVID-19 in Iraq–Implications for travellers. Travel medicine and infectious disease, 38, 101739.

7. Alsharif, F. (2021). Nurses' Knowledge and Anxiety Levels toward COVID-19 in Saudi Arabia. Nursing Reports, 11(2), 356-363.

8. Alwani, S. S., Majeed, M. M., Hirwani, M. Z., Rauf, S., Saad, S. M., Shah, S. H., & Hamirani, F. M. (2020). Evaluation of knowledge, practices, attitude and anxiety of Pakistans nurses towards COVID-19 during the current outbreak in Pakistan. *MedRxiv*.

9. Azer, S. A. (2020). COVID-19: pathophysiology, diagnosis, complications and investigational therapeutics. *New Microbes and New Infections*, 100738.

10. CDC, 2021. Prevaccination Checklist for COVID-19 Vaccines available by https://www.cdc.gov/vaccines/covid-19/downloads/pre-vaccination-screening-form.pdf

11. Chen, S., Igan, D. O., Pierri, N., Presbitero, A. F., Soledad, M., & Peria, M. (2020). Tracking the economic impact of COVID-19 and mitigation policies in Europe and the United States. IMF Working Papers, 2020(125).

12. Cirrincione, L., Plescia, F., Ledda, C., Rapisarda, V., Martorana, D., Moldovan, R. E., ... & Cannizzaro, E. (2020). COVID-19 pandemic: Prevention and protection measures to be adopted at the workplace. Sustainability, 12(9), 3603.

13. Dadson, P., Tetteh, C. D., Rebelos, E., Badeau, R. M., & Moczulski, D. (2020). Underlying kidney diseases and complications for COVID-19: A review. Frontiers in medicine, 7, 846.

14. Di Gennaro, F., Pizzol, D., Marotta, C., Antunes, M., Racalbuto, V., Veronese, N., & Smith, L. (2020). Coronavirus diseases (COVID-19) current status and future perspectives: a narrative

review. *International journal of environmental research and public health*, *17*(8), 2690.

15. Di Nardo, M., van Leeuwen, G., Loreti, A., Barbieri, M. A., Guner, Y., Locatelli, F., & Ranieri, V. M. (2021). A literature review of 2019 novel coronavirus (SARS-CoV2) infection in neonates and children. Pediatric research, 89(5), 1101-1108.

16. Ejeh, F. E., Saidu, A. S., Owoicho, S., Maurice, N. A., Jauro, S., Madukaji, L., & Okon, K. O. (2020). Knowledge, attitude, and practice among healthcare workers towards COVID-19 outbreak in Nigeria. *Heliyon*, *6*(11), e05557.

17. Ekore, J. O. (2014). Impact of key organizational factors on knowledge transfer success in multi-national enterprises. Management-Journal of Contemporary Management Issues, 19(2), 3-18.

18. Farah, A. M., Nour, T. Y., Ibrahim, M. O., Adan, M. A., Ali, O. M., Hussein, M. A., ... & Getnet, F. (2021). Knowledge, attitude and practice toward COVID-19 among healthcare workers in public health facilities, Eastern Ethiopia. *medRxiv*.

19. FAO.Iraq COVID-19 Food Security Monitor Bi-Weekly Update - Issue 21, 03 November 2020 [EN/AR] available by https://reliefweb.int/report/iraq/iraq-covid-19-food-security-monitor-bi-weekly-update-issue-21-03-november-2020-enar.

20. Gamtessa, L. C. (2020). What is known, Origin, and Impact of COVID-19; A of Review of current literature, April 2020. *Health Science Journal*, 1-4.

21. Guo, Y. R., Cao, Q. D., Hong, Z. S., Tan, Y. Y., Chen, S. D., Jin, H. J., ... & Yan, Y. (2020). The origin, transmission and clinical therapies on coronavirus disease 2019 (COVID-19) outbreak–an update on the status. *Military Medical Research*, *7*(1), 1-10.
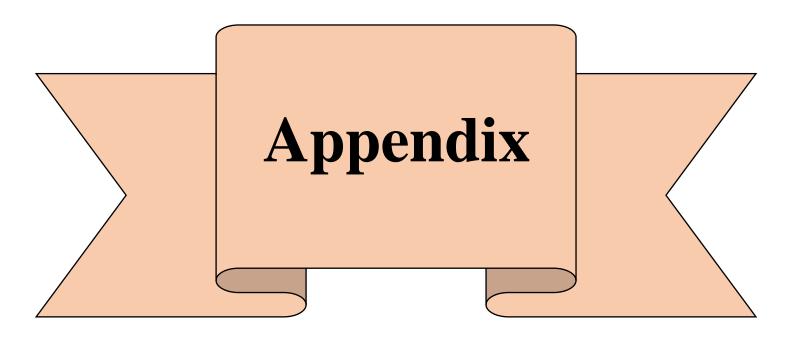
References

22. Harapan, H., Itoh, N., Yufika, A., Winardi, W., Keam, S., Te, H., ... & Mudatsir, M. (2020). Coronavirus disease 2019 (COVID-19): A literature review. Journal of infection and public health, 13(5), 667-673.

23. Huynh, G., Nguyen, T. N. H., Vo, K. N., & Pham, L. A. (2020). Knowledge and attitude toward COVID-19 among healthcare workers at District 2 Hospital, Ho Chi Minh City. *Asian Pacific Journal of Tropical Medicine*, *13*(6), 260.

24. ICN,(2002). Nursing Definitions, available by
https://www.icn.ch/nursing-policy/nursing-definitions

25. Jahangir, M. A., Muheem, A., & Rizvi, M. F. (2020). Coronavirus (COVID-19): history, current knowledge and pipeline medications. *Int J Pharm Pharmacol 2020; 4: 140. doi: 10.31531/2581*, *3080*(2).

26. Jiang, F., Deng, L., Zhang, L. et al. Review of the Clinical Characteristics of Coronavirus Disease 2019 (COVID-19). J GEN INTERNMED35,1545–1549(2020) available by https://pubmed.ncbi.nlm.nih.gov/32133578/

27. Jin, Z., Luo, L., Lei, X., Zhou, W., Wang, Z., Yi, L., & Liu, N. (2020). Knowledge, Attitude, and Practice of Nurses Towards the Prevention and Control of COVID-19.

28. Kakodkar, P., Kaka, N., & Baig, M. N. (2020). A comprehensive literature review on the clinical presentation, and management of the pandemic coronavirus disease 2019 (COVID-19). *Cureus*, *12*(4).

29. Kumar, D., Malviya, R., & Sharma, P. K. (2020). Corona virus: a review of COVID-19. *EJMO*, *4*(1), 8-25.

30. Li, Y. D., Chi, W. Y., Su, J. H., Ferrall, L., Hung, C. F., & Wu, T. C. (2020). Coronavirus vaccine development: from SARS and MERS to COVID-19. *Journal of biomedical science*, *27*(1), 1-23.

References

31. Limbu, D. K., Piryani, R. M., & Sunny, A. K. (2020). Healthcare workers' knowledge, attitude and practices during the COVID-19 pandemic response in a tertiary care hospital of Nepal. *PloS one*, *15*(11), e0242126.

32. Marwa, M. A., Mohamed, A. A., & Abd El Khalik, E. F. (2020). Nurses' knowledge and Attitude about Covid-19 among elderly patients at Intensive Care Units: suggested education. *International Journal of Advance Research in Nursing*, *3*(2), 14-21.

33. Melissa,(2021). Medical definition of patient, available by https://www.medicinenet.com/patient/definition.htm

34. Milibari, A. A. (2020). Current Situation of Coronavirus Disease:(COVID-19) Review Article. *Health Science Journal*, 1-4.

35. Nemati, M., Ebrahimi, B., & Nemati, F. (2020). Assessment of Iranian nurses' knowledge and anxiety toward COVID-19 during the current outbreak in Iran. *Arch Clin Infect Dis*, *15*(COVID-19), e102848.

36. Ouassou, H., Kharchoufa, L., Bouhrim, M., Daoudi, N. E., Imtara, H., Bencheikh, N., ... & Bnouham, M. (2020). The pathogenesis of coronavirus disease 2019 (COVID-19): evaluation and prevention. *Journal of immunology research*, *2020*.

37. Ozma, M. A., Maroufi, P., Khodadadi, E., Köse, Ş., Esposito, I., Ganbarov, K., ... & Kafil, H. S. (2020). Clinical manifestation, diagnosis, prevention and control of SARS-CoV-2 (COVID-19) during the outbreak period. *Infez Med*, *28*(2), 153-165.

38. PAHO , Epidemiological Update Novel coronavirus (COVID-19) 14 February 2020 available by Epidemiological Update Novel coronavirus (COVID-19) 14 February 2020

39. Public Health England,2020. COVID-19 vaccination: information for healthcare practitioner. available by

References

https://www.gov.uk/government/publications/covid-19-vaccination-programme-guidance-for-healthcare-practitioners

40. Ranard, L. S., Fried, J. A., Abdalla, M., Anstey, D. E., Givens, R. C., Kumaraiah, D., ... & Masoumi, A. (2020). Approach to acute cardiovascular complications in COVID-19 infection. Circulation: Heart Failure, 13(7), e007220.

41. Roupa, Z., Polychronis, G., Latzourakis, E., Nikitara, M., Ghobrial, S., Chrysafi, A., & Noula, M. (2021). Assessment of Knowledge and Perceptions of Health Workers Regarding COVID-19: A Cross-Sectional Study from Cyprus. *Journal of Community Health*, *46*(2), 251-258.

42. Sarhan, A. R., Flaih, M. H., Hussein, T. A., & Hussein, K. R. (2020). Novel coronavirus (COVID-19) outbreak in Iraq: the first wave and future scenario. medRxiv.

43. Shahera, U., Sultana, N., Sharmin, M., Malakar, J., Islam, M. R., & Haq, K. M. Z. (2020). A Comprehensive Literature Review on the Pandemic Coronavirus Disease 2019 (COVID-19): Bangladesh Is Fighting Against It. *American Journal of Biomedical and Life Sciences*, *8*(4), 76-82.

44. Sheikhi, K., Shirzadfar, H., & Sheikhi, M. (2020). A review on novel coronavirus (Covid-19): symptoms, transmission and diagnosis tests. Research in Infectious Diseases and Tropical Medicine, 2(1), 1-8.

45. Siordia Jr, J. A. (2020). Epidemiology and clinical features of COVID-19: A review of current literature. *Journal of Clinical Virology*, *127*, 104357.

46. Small, C. N., & Beatty, N. L. (2020). Atypical features of COVID-19: a literature review. JCOM, 27(3).

References

47. Speiser, D. E., & Bachmann, M. F. (2020). Covid-19: Mechanisms of vaccination and immunity. *Vaccines*, *8*(3), 404.

48. Srivastava, N., Baxi, P., Ratho, R. K., & Saxena, S. K. (2019). Global trends in epidemiology of coronavirus disease 2019 (COVID-19). Coronavirus disease, 2020, 9-21.

49. Vatan, A., Güçlü, E., Öğütlü, A., Kibar, F. A., & Karabay, O. (2020). Knowledge and attitudes towards COVID-19 among emergency medical service workers. *Revista da Associação Médica Brasileira*, *66*, 1553-1559.

50. Wahed, W. Y. A., Hefzy, E. M., Ahmed, M. I., & Hamed, N. S. (2020). Assessment of knowledge, attitudes, and perception of health care workers regarding COVID-19, a cross-sectional study from Egypt. *Journal of community health*, *45*(6), 1242-1251.

51. Wen, X., Wang, F., Li, X., & Gu, H. (2020). Study on the Knowledge, Attitude, and Practice (KAP) of Nursing Staff and Influencing Factors on COVID-19. *Frontiers in Public Health*, *8*.

52. World Health Organization. (2013). WHO evaluation practice handbook. World Health Organization.

53. World Health Organization. (2020). Coronavirus disease 2019 (COVID-19(: situation report, 94.

54. Yanti, E. D., Pradiksa, H., & Susiladewi, I. A. M. V. (2021). Nurses Knowledge and Perception Regarding Personal Protective Equipment while Caring for Patients with Covid-19. *Jurnal Keperawatan*, *13*(1), 213-226.

55. Yesudhas, D., Srivastava, A., & Gromiha, M. M. (2020). COVID-19 outbreak: history, mechanism, transmission, structural studies and therapeutics. *Infection*, 1-15.

References

56. Yu, K. D. S., Aviso, K. B., Santos, J. R., & Tan, R. R. (2020). The economic impact of lockdowns: A persistent inoperability input-output approach. Economies, 8(4), 109.

57. Zhang, M., Zhou, M., Tang, F., Wang, Y., Nie, H., Zhang, L., & You, G. (2020). Knowledge, attitude, and practice regarding COVID-19 among healthcare workers in Henan, China. *Journal of Hospital Infection*, *105*(2), 183-187.

58. Zheng, K. I., Feng, G., Liu, W. Y., Targher, G., Byrne, C. D., & Zheng, M. H. (2021). Extrapulmonary complications of COVID-19: A multisystem disease?. Journal of Medical Virology, 93(1), 323-335.

Appendix

Appendix

Appendix A

Administrative Arrangements

Appendix

Republic of Iraq
Ministry Of Higher Education&
Scientific Research
Misan University
College of Nursing
Registration and Student Affairs

جمهورية العراق
وزارة التعليم العالي والبحث العلمي
جامعة ميسان
كلية التمريض
التسجيل وشؤون الطلبة

NO:

Date:

العدد: ش م/ ٤٨
التاريخ: ١١ / ١ / ٢٠٢١

الى /مستشفى الشهيد الصدر التعليمي

م/ تسهيل مهمة

تحية طيبة

يرجى التفضل بالسماح للطلبة المدرجة اسمائهم في ادناه للمرحلة الرابعة في كليتنا بالدخول الى مستشفاكم وذلك لغرض اكمال بحث التخرج.

مع التقدير ...

الاسماء:

١- دعاء محمد عبد الزهرة
٢- زهراء يعقوب عبد الزهرة
٣- هدى سعدون غضبان

أ.م. د. رشيد رحيم حتيت
عميد الكلية
/ ١/ ٢٠٢١
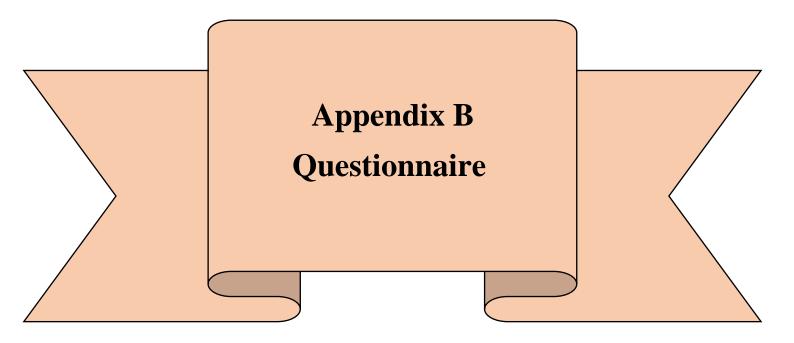
نسخة منه الى /////
● مكتب السيد العميد المحترم ... مع التقدير .
● مكتب السيد المعاون العلمي.... مع التقدير.
● شعبة شؤون الطلبة والتسجيل.
● شعبة التسجيل ملفة الطاب
● الصادر.

Appendix B
Questionnaire

Evaluation of Nurses' Knowledge toward patients with covid - 19 at health care center in Al-Amara city, Iraq

1-Age : ☐ **years**

2- sex ☐

3- Academic level ☐

4- Workplace ☐

5- Number of years of service ☐

6- Duration of work at the Covid Center ☐

Appendix

Evaluation of Nurses' Knowledge toward patients with covid - 19 at health care center in Al-Amara city, Iraq

sequence	Question	Agree	disagree	Not sure
1-	The period of quarantine for the patient ranges from(2-14) days			
2-	it is important to give vitamins to the patients to boost the immune system			
3-	Wearing a mask protects against infection			
4-	People infected with the virus need an increase in oxygen saturation if it is lower than 75%			
5-	The main method of transmission is through the nasal droplets			
6-	The person suspected of being infected with Coronavirus should be isolated until diagnosed positive			
7-	The ideal distance to prevent cross-infection from one person to another is 1.5 meters			
8-	Coronavirus infection leads to complications, including asthma			
9-	The appropriate position for the affected person is to lie on the abdomen			
10-	The most common symptoms for an individual are fever and cough			
11-	Infected people transmit the virus less than others			

Appendix

12-	Giving heparin to Corona patients			
13-	The patient becomes non-transmissible after (7-10) days from the onset of symptoms			
14-	Young people are more susceptible to contracting the virus because they are more active in public places			
15-	Fear of illness increases the likelihood that the patient will have symptoms that are more severe than others			
16-	vaccines produced contribute to protection from infection with the virus			
17-	Giving the infected person an antibiotic due to the possibility of concomitant bacterial infection			
18-	Infection with the virus may lead to kidney failure			
19-	Hands should be washed with soap and water within 60 seconds after contact with each patient			
20-	Patient vital signs should be measured every 4 hours			

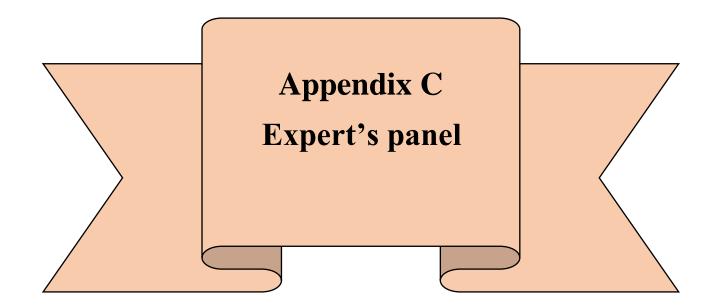**Evaluation of Nurses' Knowledge toward patients with covid - 19 at health care center in Al-Amara city, Iraq**

تقييم معرفة الممرضين تجاه مرضى كوفيد 19 - في مركز الرعاية الصحية في مدينة العمارة ، العراق

١-العمر [   ] سنة

٢-الجنس [   ]

٣- المستوى الدراسي [   ]

٤- مكان العمل [   ]

٥-عدد سنوات الخدمه [   ]

٦-مدة العمل في مركز كوفيد [   ]

Appendix

ت	السؤال	اوافق	غير متأكد	لاأوافق
١	مدة الحجر الصحي للمريض من(٢-١٤) يوم			
٢	اعطاء الفيتامينات للمريض لدعم الجهاز المناعي			
٣	هل تعتقدان لبس الكمامة ((mask)) يحمي من الفايروس			
٤	يحتاج الافراد المصابون بفايروس كورونا الى زياده تشبع بالأوكسجين في حالة انخفاض عن ٧٥%			
٥	الطريقة الرئيسة لانتقال العدوى هي رذاذ الجهاز التنفسي			
٦	عزل الشخص المشكوك إصابته بفايروس كورونا الى حين ظهور النتيجة			
٧	المسافة المثالية بين شخص وأخر هي١.٥ متر			
٨	تؤدي الإصابة بالفايروس الى حدوث مضاعفات منها الربو			
٩	الوضعية المناسبة للجسم هي الاستلقاء على البطن			
١٠	المظاهرالاكثرشيوعاً في الفرد الحمى السعال			
١١	مصابون بالفايروس ينقلون الفايروس أقل من غيرهم			
١٢	أعطاء مرضى كورونا الهيبارين			
١٣	يصبح المريض غير معدي بعد٧-١٠ايام من ظهور الأعراض			
١٤	الشباب أكثر إصابة بفايروس كورونا لانهم اكثر نشاط في الاماكن العامة			
١٥	الخوف يزيد من احتمالية تعرض المصاب للأعراض اكثر حده من غيره			
١٦	هل تعتقد ان اللقاح مهم في الحماية من الإصابة بالفايروس؟			
١٧	اعطاء المصابون مضاد حيويantibiotic لأحتمال إصابتهم بعدوى جرثومية مصاحبة			
١٨	الإصابة بالفايروس قد يؤدي الى الفشل الكلوي			
١٩	يجب غسل اليدين بالماء والصابون خلال ٦٠ثانية بعد ملامسة كل مريض			
٢٠	قياس العلامات الحيوية للمريض كل ٤ ساعات			

Appendix C
Expert's panel

Appendix

قائمه خبراء تحكيم الاستبانة

ت	اسم الخبير	الشهادة والاختصاص	المرتبة العلمية	سنوات الخبرة	مكان العمل
١	غزوان عبدالحسين	دكتوراه صحة مجتمع	مدرس	17 سنه	جامعة ميسان/كلية التمريض
٢	عقيل عزيز عرار	دكتوراه تمريض بالغين	مدرس	١٥ سنه	جامعة ميسان/ كلية التمريض
٣	سعد صبري	ماجستير صحة مجتمع	مدرس	١٥ سنه	جامعة ميسان/كلية التمريض

Appendix

<div dir="rtl">

الخلاصة

• **الأهداف:** كان الغرض من هذه الدراسة هو تقييم معرفة وموقف وسلوك طاقم التمريض فيما يتعلق بـ COVID-19 وهو نهج مفيد لتطوير إجراءات الوقاية والسيطرة في المواقف المماثلة باستخدام الوقاية السابقة. ولأكتشاف الارتباط بين معرفة الممرضات وخصائصهم الاجتماعية والديموغرافية (العمر والجنس ومستوى التعليم وسنة الخبرة ومدة العمل).

• **المنهجية:** أجريت دراسة تقييمية وصفية في مستشفى الصدر التعليمي ومستشفى قلعة صالح العام ومركز ميسان لأمراض وجراحة القلب. خلال الفترة من 29 ديسمبر 2020 حتى 10 يوليو 2021 تحت عنوان (تقييم معرفة الممرضين أتجاه مرضى كوفيد - 19 في مركز الرعاية الصحية في مدينة العمارة ،العراق). تم إجراء تحليل البيانات من خلال تطبيق إحصائية وصفية وإحصائية استنتاجية (اختبار Chi-square).

• **النتائج:** أشارت نتائج الدراسة إلى أن أكثر من ثلث الفئة العمرية في عينة الدراسة كانت ضمن (24-28 سنة) حيث شكلوا (36٪) من عينة الدراسة ، وفيما يتعلق بالجنس أكثر من نصف المشاركين من الذكور حيث شكلوا نسبة (60٪) أما بالنسبة للمستوى التعليمي فقد بينت الدراسة أن نصف المشاركين حاصلون على دبلوم التمريض حيث شكلوا نسبة (56٪). بالنسبة لعدد سنوات الخبرة أكثر من نصف الممرضات لديهم (1-5 سنوات) في الخدمة وشكلت (56٪) من عينة الدراسة. فيما يتعلق بمدة العمل في covid19 ، فإن ثلث المشاركين لديهم (9 أشهر) حيث بلغت نسبتهم (36٪). وفي الختام خلصت الدراسة إلى أن معظم المشاركين لديهم مستوى عالٍ من المعرفة ويشكلون (87٪) من عينة الدراسة. أظهرت الدراسة وجود علاقة ارتباط معنوية عالية بين معرفة الممرضات وأعمارهن ومكان العمل ومدة العمل في مركز كوفيد -19.

• **التوصيات:** أوصت الدراسة بوضع خطة لقوى التمريض للاستثمار في الممرضات ، لأنهم يشكلون أكبر مجموعة رعاية صحية وهم عمال رعاية صحية مهمون للغاية ولديهم أدوار واضحة ومهمة للغاية ، وكذلك أوصت بأن تستجيب الممرضات بفعالية إلى الجائحة وأن تكون جميع الإمدادات الطبية متاحة ، مثل معدات الوقاية الشخصية ، للمساعدة في الحفاظ

</div>

Appendix

على حياة الممرضات والمرضى آمنة ، بالأضافة إلى عقد برامج التثقيف الصحي حول
COVID-19 والتي تعد مفيدة وضرورية للتغلب على المرض.

Appendix

تقييم معرفة الممرضين أتجاه مرضى كوفيد ـ 19 في مركز الرعاية الصحية في مدينة العمارة ، العراق.

أعد بواسطة الطالبات :

هدى سعدون غضبان

زهراء يعقوب عبد الزهره

دعاء محمد عبد الزهره

للحصول على درجة البكالوريوس في علوم التمريض

مشرف:

أ.م.د. حيدر كريم عبود

م. محمد جاسم قاسم

١٤٤٢ذو القعدة   تموز ٢٠٢١