

## Assessment Nurses Knowledge, Practice and Attitude Regarding Prevention and Control COVID-19

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### Abstract

**Aim:** the current study aimed to assess nurses knowledge, practice and attitude regarding prevention and control Covid-19. **Design:** descriptive research design was used in this study. **Setting:** This study was conducted on the nursing staff in the isolation hospitals affiliated with the Directorate of Health Affairs in Beni Suef, **Subjects:** A convenience sample consisted of 300 nurses working in isolation hospitals. **Tool:** Structural Interviewing Questionnaire, it was contained four parts: **Part I:** Nurses' demographic characteristics. **Part II:** Nurses' knowledge **Part III:** Nurses' attitude. **Part IV:** nurses' reported practice about Covid-19. **Results:** 47.7% of the studied nurses had a satisfactory level of knowledge, 62.7% of the studied nurses had a positive attitude toward Covid-19, and 53.3% of the studied nurses had adequate reported practice level. **Conclusion:** there was positive correlation between knowledge, attitude and reported practice toward covid 19. **Recommendation:** Design training programs and workshops regarding Covid-19 for nurses to increase awareness and practices for the control& prevention of covid-19

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**Key words:** Knowledge, Attitude, Reported practice, Covid-19, Nurses, Prevention and Control, COVID-19.

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## Introduction

Since March 2020, the world has faced a severe threat called COVID-19. According to the WHO, the COVID-19 pandemic is currently the most critical health crisis in the world and the most significant challenge and threat facing the world and humanity. This disease is a public health problem that has claimed the lives of many men, women, and children worldwide (Mohammad et al., 2022)

There were two previous outbreaks of coronaviruses; SARS-CoV and Middle East respiratory syndrome-corona virus (MERS-CoV) in 2003 and 2012, which resemble the novel coronavirus. Due to the rapid spread of this highly transmitted virus to many countries, world health organization (WHO) declared it as a "public health emergency of international concern" on January 30, 2020. Later, due to the continual rise in the number of affected countries, cases, and fatalities, WHO declared COVID-19 as a global pandemic on 11 March 2020 (WHO, 2020)

The virus spreads in most cases when an infected individual coughs, sneezes, or talks, where the virus is mostly disseminated by saliva droplets or nasal secretions. Drops cannot extend more than six feet (almost two meters). It may float in the air for up to three hours while still being intact and contagious in droplets (Zhu et al., 2020). Additionally, tainted droplets may settle down on materials including plastic, stainless steel, copper, and cardboard. When a person touches surfaces that have the COVID 19 virus on them and then touches mucous membranes like the eyes, nose, or mouth, they risk contracting the disease (WHO, 2020)

Covid-19, caused by severe acute respiratory syndrome, was considered a global pandemic epidemic, deemed by the World Health Organization as a public health emergency of international concern. Efforts made by all nations in concert to stop the Covid-19 virus's fast spread (Zhou et al, 2020). Infections frequently manifest as respiratory symptoms, fever, cough, shortness of breath, and breathing difficulties. In more serious instances, the infection may result, severe acute respiratory syndrome, renal failure, pneumonia, and other complications and mortality (Zegarra et al., 2020).

Nurses play an important role in promoting health and overcoming delays in receiving appropriate healthcare services related to the COVID 19 situation by improving awareness about diagnosis, treatment, disease management and research into preventive measures towards coronavirus by providing much-needed support and information (Srichan et al., 2020). Nurses help in providing care including promotion, prevention, treatment, and rehabilitation. Also share health information, carryout infection prevention and control measures, work in intensive care units, and make sure routine services are still provided (Choi et al., 2020)

## Significance of the study

Globally, there have been 755 786 confirmed deaths and 21 026 758 confirmed cases within the COVID-19 pandemic (WHO, 2020). In Egypt, changes every day of life have been rapid, with virus outbreaks, and an increasing death rate. COVID-19 considered a pandemic in Egypt as part of an ongoing worldwide COVID-19 pandemic. The Ministry of Health and Population in Egypt confirmed that the first case of COVID-19 in Egypt was on February 14, 2020. As of the evening of June 15, there were 46289 confirmed cases of Covid-19 and 1672 deaths in Egypt (Ministry of Health and Population Egypt, 2020).

Worldwide, there is no consistent record of the number of healthcare workers and nurses who have Covid19 infection. But the International Council of Nurses' analysis, depend on data from National Nursing Associations, media reports, and official figures from different countries, designates that more than 230,000 healthcare workers have constricted the disease, and more than 600 nurses have died from the virus. International Council of Nurses' analysis displays that on a regular 7% of all Covid-19 cases worldwide are among healthcare workers, which means that nurses are at great risk for infection (*International Council of Nurses, 2020*).

Nurses are in direct contact with contaminated patients and suspects, may be on the front lines of the Covid-19 epidemic and are at risk of contamination due to their exposure to the threats. Worldwide Council of Nurses reported that 2.195% of all verified COVID-19 cases—260 nurses who had died—were among the more than 90 000 health-care workers worldwide who were infected with the virus (*Nguyen et al., 2020*).

Nurses are the frontline healthcare professionals who have multiple roles and functions during the Covid-19 pandemic, which include: providing inservice training program, screening services, and support for the public and individuals in high-risk groups, Nosocomial infection prevention and surveillance, Implementing standard precautions (hand hygiene, personal protective equipment, respiratory hygiene, medication storage, and injection safety); and educate, train patients and families, deliver direct life-sustaining care to patients with COVID-19 who are in an acute or critical condition, provide emotional and psychological support to individuals required home quarantine restrictions (*Ammar & Ramadan, 2020*).

### **Aim of the study**

This study aims to assess nurses' knowledge, attitude and reported practice regarding prevention and control COVID-19 through:

1. Assessing the nurses' knowledge regarding prevention and control Covid-19.
2. Assessing the nurses' attitude regarding prevention and control COVID-19.
3. Assessing the nurses' reported practices regarding prevention and control Covid-19

### **Research questions**

What is nurses' knowledge regarding prevention and control Covid-19?

What is nurses' attitude regarding prevention and control Covid-19?

What is nurses' reported practice regarding prevention and control Covid-19?

### **SUBJECTS and Methods**

#### **Research design**

A descriptive research design was used in this study.

#### **Setting:**

This study was conducted on the nursing staff in the isolation hospitals affiliated to the Directorate of Health Affairs in Beni Suef, Egypt (Al- Wasta, Nasser, Fever, Al-chest, Somasta, Al- Fashin)

### Subjects:

A convenient sample was used in this study. The sample consisted of 300 nurses working in isolation hospitals, and the sample was taken from nurses working in isolation hospitals

### Tools of data collection:

**Tool: Structural Interviewing Questionnaire:** It was developed by the researcher after reviewing the national and international related literature, it contains to four parts:

**Part I: Nurses demographic characteristics:** it was concerned with age, sex, marital status, level of education, position, years of experiences and residence.

**Part II: Nurses' knowledge regarding COVID-19:** It was constructed to assess the nurse's knowledge regarding COVID- 19 such as meaning, manifestation, incubation period, predisposing factors, modes of transmission, high risk groups, diagnostic measures, complications, types of vaccination used in Egypt, cases needed home isolation, time of hand washing, and precautions to prevent infection.).

### Knowledge scoring system:

It included 12 ended questions, each correct answer was given (2 mark), and incorrect was given (1mark) and don't know was given (0). The total score ranged from 0-24, the total knowledge level considered satisfactory  $\geq 60\%$  ( $\geq 15$ ), and unsatisfactory  $<60\%$  ( $<15$ ).

**Part III: Nurses' reported Practice about COVID-19:** It was included nurses' reported practice regarding COVID-19 such as general practices it was included cases sorted for the presence of respiratory symptoms at the entrance to the hospital, dealing with all body fluids of the patient as an infection Committed to washing hands before and after touching the patient minimize the time spent with the novel covid-19 patient as much as possible.

**Reported Practice scoring system:** It included 30 items, each item had three choices to be answered always (3mark), sometimes (2mark), and never (1 mark). The total score ranged from 1-90, the total practice level considered adequate practice  $\geq 60\%$  ( $\geq 54$ ), and inadequate practice  $<60\%$  ( $<54$ ).

**Part IV : Nurses' attitude regarding COVID-19:** It was constructed to assess the nurses' attitude regarding COVID- 19 such as covid – 19 is a serious disease, fear can hinder recovery from illness, the information published by the Ministry of Health about covid- 19 must be followed, nursing has an important role in controlling covid – 19, it is possible to limit the spread of covid - 19 in hospitals by applying infection control standards, a dose of vaccination must be obtained to prevent infection with covid – 19, health education about covid – 19 is important to raise awareness and prevent it.

**Attitude scoring system:** It included 10 items, each item had three choices to be answered agree (3mark), neutral (2mark), and disagree (1 mark). The total score ranged from 1-30, the total attitude level considered positive attitude  $\geq 60\%$  ( $\geq 18$ ), and negative attitude  $<60\%$  ( $< 18$ ).

**Tool Validity:** The revision of the tools for clarity, relevance, comprehensiveness understanding and applicability was done by a panel of five experts from Faculty of Nursing Helwan University to measure the content validity of the tools and the necessary modification was done accordingly.

**Reliability:** Reliability coefficients was calculated for the study tool by using calculating cronbach Alpha which was (0.804), for knowledge (0.604), for attitude (0.823) and (0.775) for reported practice.

### **Ethical Consideration**

Prior to the study ethical approval was obtained from the Scientific Research Ethical Committee of Faculty of Nursing Helwan university, an official permission was taken from the authoritative personnel in the mentioned hospital and informal consent was obtained from all nurses, the purpose and the nature of the study was explained to them prior the interview. The researcher was emphasis that the participation in the study is entirely voluntary; anonymity and confidentiality were assured through coding the data and he have the right to withdraw at any time.

## **II. Operational items**

The operational design includes preparatory phase, pilot study, and field work.

### **Preparatory phase**

The researcher was reviewed current and past, local and international related literature and theoretical knowledge of various aspects of the study using books, articles, journals, and internet to prepare the tools of data collection.

### **Pilot Study**

A pilot study was conducted on 10% (30 nurses) of the nurses under study to assess the feasibility of the study as well as clarity and objectivity of the tools. Not modification was done in tool so, pilot study sample were included in the actual study sample.

### **Field work**

Before conducting the study, an official permission was obtained from the Dean of Faculty of Nursing, Helwan University to the director of health in Beni Suef. Before conducting of the study, permission was obtained from the directors of the hospitals. The researcher met the nurses and the aim of the study was explained to them. Their informed verbal consent was secured before collecting data. Data was collected during six months from (beginning of March 2022 to the end of August 2022).

## **III. Administrative items**

An official permission approval was obtained from the Dean of Faculty of Nursing at Helwan University and official permission from the Directorate of Health Affairs in Beni Suef to conduct the study and explain the purpose and the nature of the study.

**IV. Statistical items**

Data entry and data analysis were done using statistical package for the social science (SPSS) version 26. Data were presented as number, percentage means and standard deviation. T-test used to compare mean. X2 test was used to show difference between variables, Pearson test was used to show correlation between variables. P-value considered statistically significant when <0.05 and highly statistically significant when < 0.0.

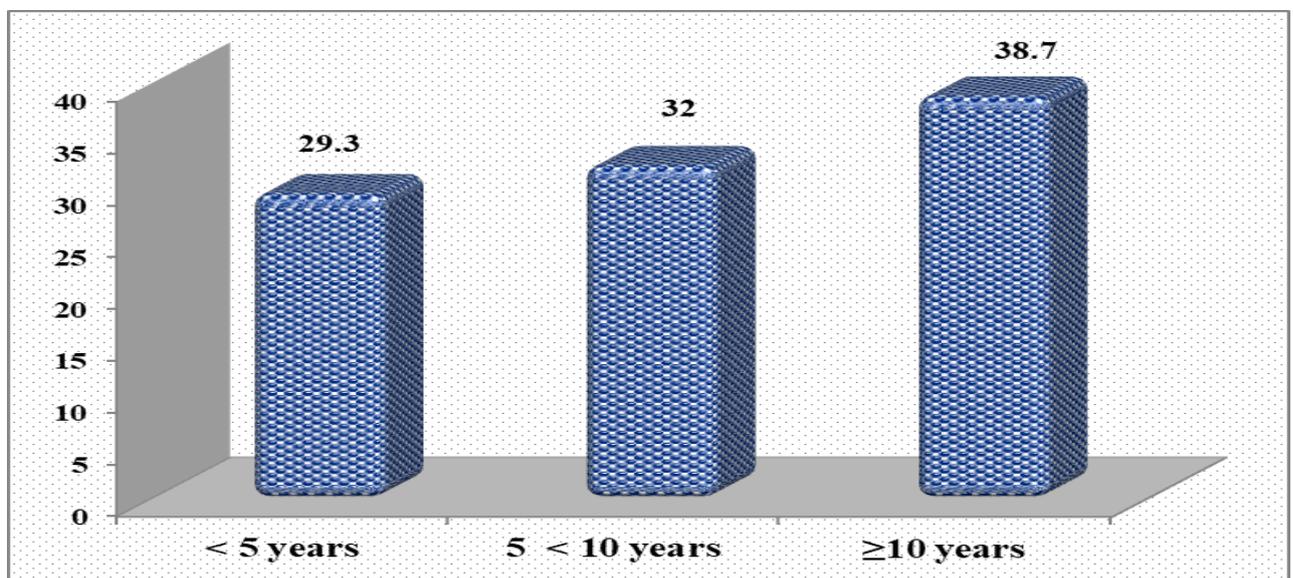
**Results**

**Table (1):** Frequency distribution of the studied nurses according to their demographic characteristics (n=300)

Demographic characteristics	No.	%
<b>Age/ years</b>		
< 30 years	170	<b>56.7</b>
30 -< 40 years	67	22.3
40 -< 50 years	57	19.0
≥ 50 years	6	2.0
<b>Age (<math>\bar{x}\pm SD</math>)</b>	<b>29.23±7.14</b>	
<b>Sex</b>		
Male	13	4.3
Female	287	<b>96.7</b>
<b>Marital status</b>		
Single	70	23.3
Married	206	<b>68.7</b>
Divorced	14	4.7
Widowed	10	3.3
<b>Place of residence</b>		
Urban	84	28.0
Rural	216	<b>72.0</b>
<b>Education level</b>		
Nursing Diploma	82	27.3
Technical Nursing Institute	137	<b>45.7</b>
Bachelor of Nursing	77	25.7
Master of Nursing Sciences	4	1.3

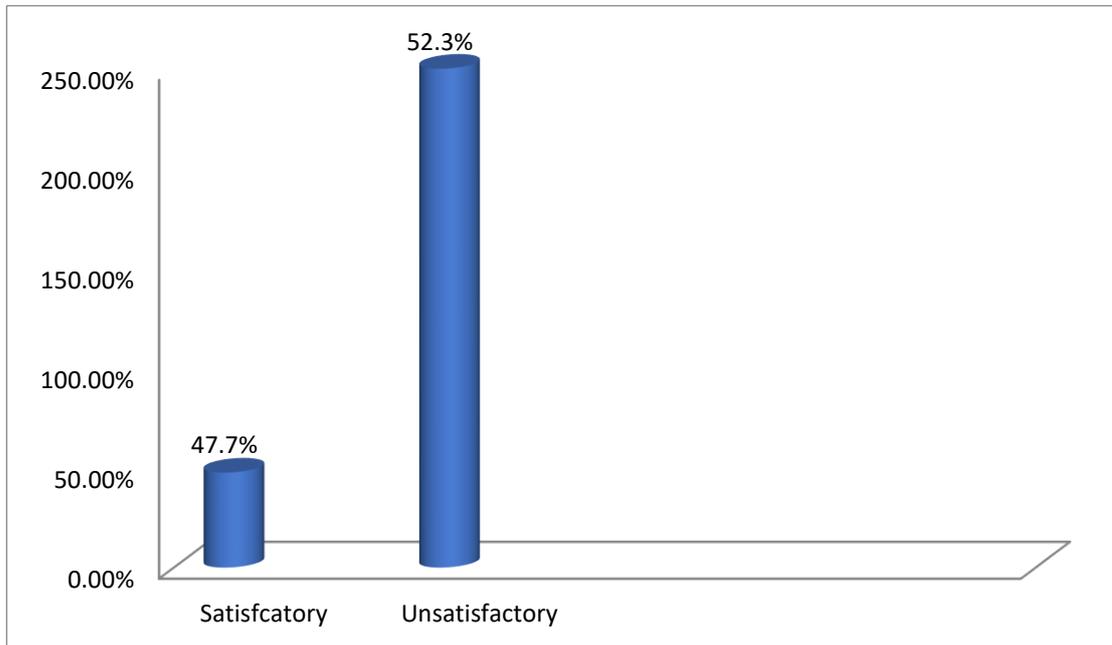
<b>Current job</b>		
Nurse	230	76.7
Supervision	70	23.3

**Table (1)** clarifies that 56.7% of the studied nurses were in age group from <30 years with  $\bar{x} \pm SD$  of  $29.23 \pm 7.14$ , 96.7% of them were female. 68.7% and 72.0% of the studied nurses were married and lived at rural areas respectively. Concerning educational level, 45.7% of them had technical nursing institute, 76.7% of them were nurses.



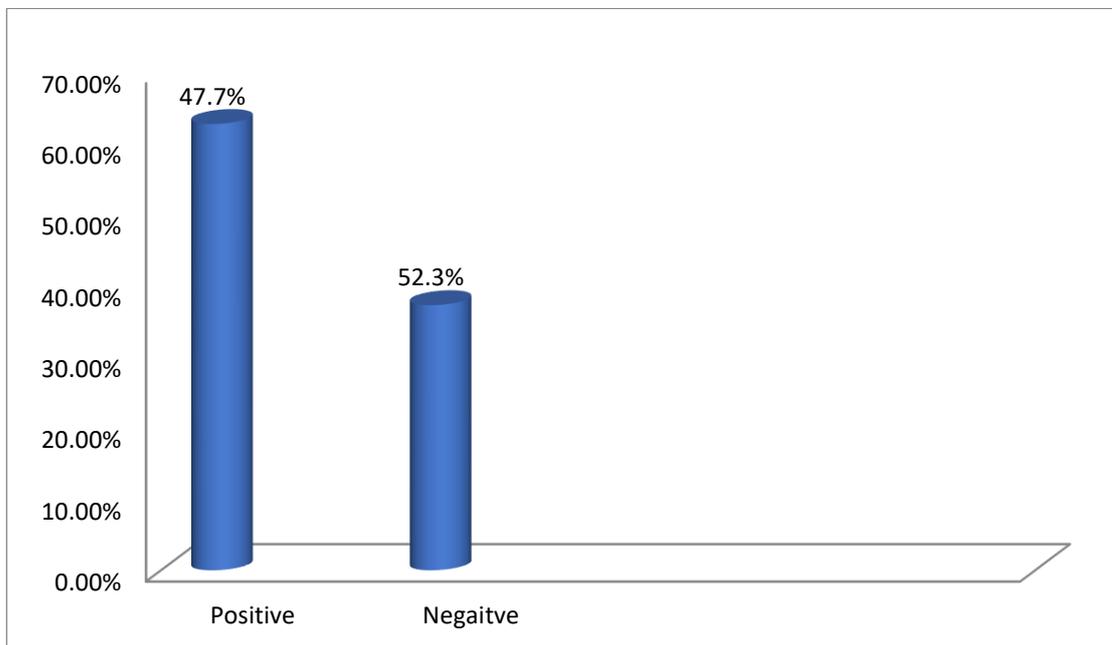
**Figure (1):** frequency distribution of the studied nurses according to their years of experience (n=300)

Fig. 1 illustrates that, 29.3%, 32%, and 38.7% of the studied nurses' had <5 years, 5-10 years, and >10 years of experience respectively.



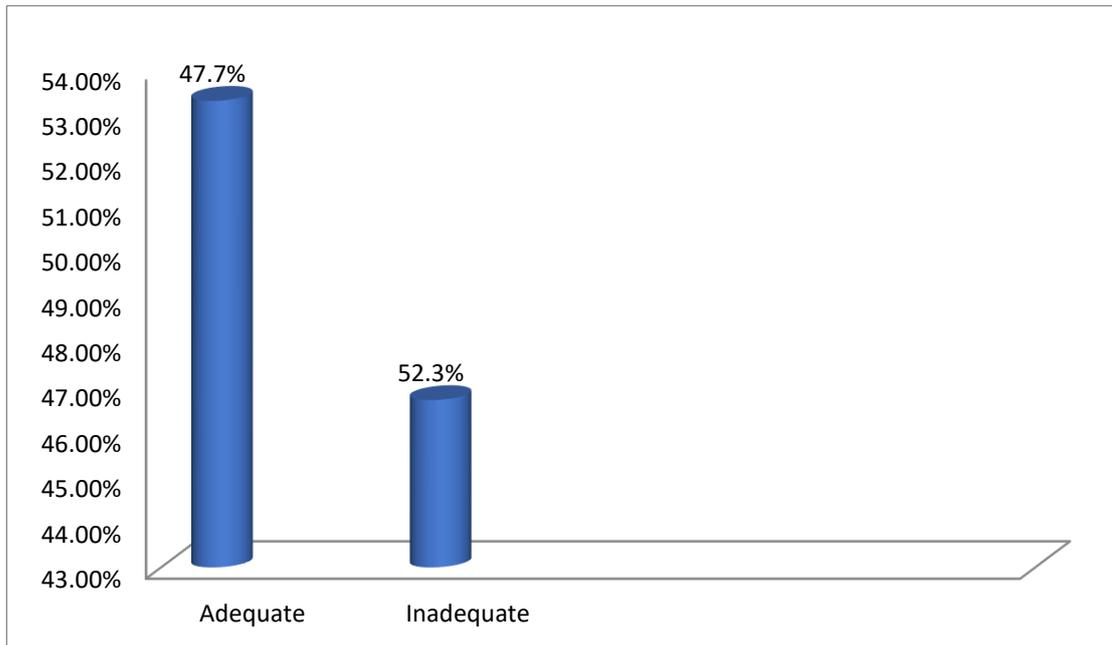
**Figure (2):** total knowledge level of the studied nurses' about Covid -19 (n=300)

Fig. 2 illustrates that, 47.7% of the studied nurses had a satisfactory level of knowledge about Covid -19



**Figure (3):** The studied nurses' total attitude level toward Covid-19 (n=300)

Fig. 3 demonstrates that 62.7% of the studied nurses had a positive attitude toward Covid-19



**Figure (4):** The studied nurses’ total reported practices level toward covid-19 (n=300)

Fig. 4 reveals that 53.3% of the studied nurses had adequate reported practice level about Covid -19

**Table (2) Correlation between the studied nurses’ total knowledge level, attitude and total reported practices level (n=300):**

Variable	Total knowledge level		Total practices level	
	R	P	R	P
Total practices level	.140	.016*		
Total attitude level	.162	.005**	0.045	0.434

Table 10 illustrates that there was positive correlation between total knowledge level, attitude and total reported practices level. about Covid -19

### Discussion

Covid-19 was declared a pandemic by the World Health Organization (WHO), which emerged in late 2019, spread almost all over the world and was seen in thousands of people and caused thousands of people to die. The professional practice of infection prevention and control has long been a responsibility of health-care facilities, although typically considered in relation to patient protection (Kurt Alkan et al., 2022).

Protection of healthcare workers are important steps in the infection, the understanding or having enough information control of sources, clinical manifestations, transmission routes, and prevention ways among healthcare workers can play roles for this gal 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 (**Wang et al., 2020**).

Regarding to demographic characteristic, the present study finding showed that, more than half of the studied nurses' were in age group from <30 years with  $\bar{x} \pm SD$  of  $29.23 \pm 7.14$ , This result was supported with **Saqlain et al., (2020)**, in Pakistan (n= 414) entitled "knowledge, attitude, and practice regarding COVID-19 among health care workers" who denoted that 55.6% of the studied nurses were aged less than 30 years.

Regarding to gender, the present study illustrated that the majority of the studied nurses were female and more than two thirds of them were married respectively. This result was in accordance with **Semerci et al. (2020)** in Turkey (n=163) entitled "assessed Turkish oncology nurses' knowledge regarding novel coronavirus (COVID-19) during the current outbreak" who stated that 89.7% of the study sample were females and 67.2% of them were married respectively. Also this result was supported with **Elhadi et al. (2021)** in Libya (n=200) entitled "Knowledge, attitude, and acceptance of healthcare workers and the public regarding the COVID-19" and found that 90.7% of the studied subject were females and 68.9% of them were married. This may be due to the nature of nursing profession worldwide and in Egypt, where the predominance is for females, also females were empathic and more flexible as well as stronger in interpersonal skills than males

The present study finding showed that, less than three quarters of the studied nurses lived at rural areas. This result was contrasted with **Tien et al. (2021)** in Vietnam (n=963 participants) entitled "Knowledge, attitudes, and practices regarding COVID-19 prevention among Vietnamese healthcare workers in 2020" who showed that 20.1% of the studied subjects lived at rural areas.

Concerning educational level, the present study revealed that more than two fifths of the studied nurses had technical nursing institute and more than three quarters of them were nurses. This finding incongruent with **Nemati et al. (2020)** study done in Iran (n=85 nurses) whose conducted study about "assessment of Iranian nurses' knowledge and anxiety toward COVID-19 during the current outbreak" who denoted that 67.1% of the studied nurses had a bachelor's degree. Also, the result disagreed with **Semerci et al. (2020)** who found that 52.4% of the studied nurses were staff nurse. From the investigator point of view, this may be because many bedside nurses in governmental hospitals graduated from the nursing technical institute

According to their years of experience, more than one third of the studied nurses had >10 years of experience. This result was approved with the study done in Ethiopia (n=404 participants) by **Adane et al. (2022)** entitled as "Knowledge, attitudes, and perceptions of COVID-19 vaccine and refusal to receive COVID-19 vaccine among healthcare workers in northeastern Ethiopia" who found that 43.6% of the healthcare workers had work experience more than 10 years.

As regard to total knowledge level of the studied nurses' about Covid -19, the current study result illustrated that, less than half of the studied nurses' had a satisfactory level of knowledge. These findings in agreement with **Qadah (2020)** who showed that, 88 % of participants displayed satisfactory knowledge towards COVID-19. Also, this result was in the same line with **Reuben et al.,(2020)** who applied study (n=589 nurses) entitled "Knowledge, attitudes and practices towards COVID-19: an epidemiological survey in North-Central Nigeria" who revealed that low percentage of health care workers had sufficient knowledge towards COVID-19.

These current results were supported with **Mbachu et al. (2020)** who conducted study in Nigeria (n= 403 participants) entitled "COVID-19 infection: Knowledge, attitude, practices, and impact among healthcare workers in a South-Eastern Nigerian state" who mentioned that 20% of the participants had good knowledge of COVID-19.

Concerning total attitude level toward Covid-19, The present findings showed that less than two thirds of the studied nurses had a positive attitude toward Covid-19. This result was supported with study done in India (n=190 nurses) by **Kundu et al. (2023)** entitled as "Attitude of the staff nurses toward COVID care and work challenges faced by them" who showed that 98.2% of staff nurses had positive attitude, Also the result comes in the same line with **Kamacocko et al. (2021)** who conducted study entitled "Knowledge, Attitudes, and practices regarding COVID-19 among healthcare workers in Uganda" and showed that 78.4% of the studied nurses had a positive attitude. While contrasted with **Al-Dossary et al., (2020)** who applied study entitled "Awareness, Attitudes, Prevention, and Perceptions of COVID-19 Outbreak among Nurses in Saudi Arabia" and mentioned that 60.4% of the nurses had high positive attitudes toward caring for COVID-19 patients. From the researcher point of view, this result may be due to increase nurses' knowledge about covid-19 can lead to improve attitude toward covid-19.

As regard to total reported practices level toward covid – 19, more than half of the studied nurses had adequate practice level toward covid 19. This result was in the same line with **Asemahagn (2020)** who applied study in Ethiopia (n=442 participants) entitled "Factors determining the knowledge and prevention practice of healthcare workers towards COVID-19 in Amhara region, Ethiopia: a cross- sectional survey" and found that the studied participants had good COVID -19 practices. Also, this result congruent with **Abd-Elhamed and Hasab Allah (2022)** in Egypt (n=70 nurses) entitled "Effect of Educational

Program on Nurses' Knowledge, Practice and Attitude Regarding Covid -19 at Maternity Care Units" who revealed that 15.7% of the studied sample had competent level of practice. From the researcher point of view, up to date knowledge and nursing skills can play important roles in improve nurses practice and improve infection control. Nurses should have the opportunity to practice infection control on a day-to-day basis as an integral part of patients' care.

Concerning correlation between the studied nurses' total knowledge level, attitude and total reported practices level toward Covid-19, the finding of these study revealed that that there was positive correlation between total knowledge level, attitude and total reported practices level toward Covid 19

This result was similar with **Saqlain et al., (2020)** who revealed significant positive correlations as follows: knowledge attitude knowledge practice and attitude practice. And this result was supported with study in Egypt (n= 150 participants) by **Elshenawie et al., (2020)** entitled "Guidelines on Nurses' Knowledge, Attitude and Practice toward COVID-19" who showed that there was a positive correlation between studied nurses' knowledge, attitude, and practice toward COVID-19. While this result was contrasted with **Moustafa et al. (2021)** in Egypt (n=30 nurses) entitled "Efficacy of COVID-19 Prevention Educational Program on Nurses' knowledge and Practices at Hemodialysis Unit" who showed that there was a negative correlation between the score of nurses' knowledge and practices. This result may be due to correct knowledge enhance level of practice that reflects on attitude level among studied nurses.

## Conclusion

### In the light of the current study findings, it can be concluded that:

Less than half of the studied nurses had a satisfactory level of knowledge toward Covid-19. And less than two thirds of the studied nurses had a positive attitude toward Covid-19. Also, more than half of the studied nurses had adequate reported practice level toward Covid-19. Additionally, there were positive correlation between total knowledge level, attitude and total reported practices level toward Covid-19.

## Recommendation

### Based on the current study finding the following recommendations were proposed:

- Design health educational program and workshops regarding covid -19 for nurses to increase awareness and practices to control and prevention of covid 19.
- Disseminate booklets & poster about covid-19 among nurses.
- Further research on a large sample and other settings need.

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