

## Effect of Instructional Guidelines regarding COVID -19 on Nurses' Knowledge and Practices in Surgical unit

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### Abstract

**Background:** COVID -19 pandemic affected the global population, and infection is a high risk among nurses in surgical units. Because is particularly prevalent in healthcare settings, nurses' educational institutions must take steps to safeguard themselves and others during the outbreak by preventing COVID -19 and caring for infected COVID -19 patients. **This study aimed to** evaluate the effect of instructional guidelines regarding covid-19 on nurses' knowledge and practices in the surgical unit. **Design:** A quasi-experimental design was used. **Setting:** The study was carried out at Surgical Unit at Fayoum University Hospital. **Sample:** The study included a convenient sample of all surgical nurses (30 nurses). **Three tools for data collection were used:** (1) Demographic structured interview sheet, (2) surgical nurses' knowledge regarding Covid-19 assessment questionnaire, and (3) surgical nurses' practices regarding preventive measures of COVID -19 observation check lists. **Results:** Less than two-thirds of the studied nurses received training courses regarding COVID-19 before. The majority of the studied nurses reported that their main source of information about knowledge regarding COVID-19 was doctors. Nurses' knowledge of COVID -19 improved after one month of implementing instructional guidelines ( $P=0.001$ ), with a highly statistically significant difference between pre/post one month of instructional guidelines ( $P=0.001$ ). A statistically significant correlation was found between the scores of the studied nurses' COVID-19 knowledge and practice. **Conclusion:** The study concluded that instructional guidelines implementation for nurses in the surgical unit had a positive effect on improving nurses' knowledge and practice regarding COVID-19 with significant differences one month after instructional guidelines implementation. **Recommendation:** In-service training program for nurses in the surgical unit to improve their knowledge and practices on the management of covid-19.

**Keywords:** COVID-19, Instructional guidelines, Nurses' knowledge, Practices.

## **Introduction:**

The coronavirus disease (COVID-19) first appeared in China, in Wuhan, in late 2019, and has since spread to more than 200 nations, prompting the World Health Organization (WHO) to designate it a worldwide pandemic. COVID-19 positive cases have been reported in approximately 5.6 million people worldwide, with at least 350,000 deaths. Governments and authorities in the field of health are issuing general warnings. COVID-19 is connected with an increased risk of the more serious and perhaps deadly disease in the elderly (Azlan et al., 2021).

Corona virus disease of 2019 (COVID-19) is a relatively new and well-known acute viral respiratory infection caused by a member of the coronavirus family that was recently found. According to the World Meter (May 2021), COVID-19 has been confirmed in 154,098,279 cases worldwide, with 3,224,709 deaths and 131,412,537 recovered cases (WHO, 2020).

Infection with COVID-19 is growing more widespread on the African continent, especially in Egypt. As of June 29, 2020, COVID-19 had caused nearly 382,600 confirmed cases, over 9700 fatalities, and around 147,000 recoveries in Africa, with Egypt accounting for roughly 24% of these cases (Africa CDC, 2020).

Fever, fatigue, and a dry cough are the most typical symptoms of COVID-19. Aches and pains, nasal congestion, a runny nose, or a sore throat may be experienced by certain people. These symptoms are usually modest and appear over time. The majority of people (about 80%) recover from the disease without

requiring specific treatment, and the majority of people – mainly children and young adults – experience only modest symptoms as a result of COVID-19. However, it can cause serious disease in some persons, according to (Cucinotta and Vanelli, 2020).

The Corona virus is primarily passed from one person to another through close contact within six feet of infected people through respiratory; sneezes or coughs or transmitted via touching an object or a surface that the virus settles on it (Huynh et al., 2020). The major method for limiting the spread of that virus in the community and healthcare settings is to follow infection control standards procedures (Li, et al., 2020).

Misunderstandings among nurses about the virus, its manner of transmission, and the essential steps to avoid infection as a result of this novel have delayed efforts to offer critical treatment in some cases, resulting in the rapid spread of infection in hospitals and putting patients at risk (Elshenawie, et al., 2020).

The COVID-19 knowledge and practices are significant in determining a nurse's openness to embrace change. As a result, research provides a starting point for determining the type of action needed to change public knowledge and practices toward the virus. Gaining a deeper understanding of the illness would also be important to develop preventive measures and health promotion initiatives (Azlan, et al., 2021).

Instructional guidelines are a process of assisting the individual to reach optimum educational development. It is a sort of guidance that is only

rendered to the community. Instructional guidance helps the people to make right choices, as well as make adjustments in relation to curriculum and courses which is contribute to the all-round development (John, 2015).

Knowledge and practice are the foundations of public partnership and the backbone of any health policy that enlightens and protects people in all aspects of their life from ignorance and darkness. Information is recognized as the fuel that propels human existence forward, and gathering information is seen as the major activity that prepares a person for long and fruitful life. Threats must be avoided, and the nurses must remain calm and composed in the face of difficulty. A proper level of understanding aids the execution of effective measures. The most crucial stage in preventing the virus from spreading locally is to implement and enforce protective measures (Abdelhafiz et al., 2020).

Nurses' knowledge and behaviors should be geared toward strong preventive measures to avoid the spread of the coronavirus infection. At this stage, it's critical to understand nurses' knowledge and practice with COVID-19 (WHO, 2020). COVID-19 nursing management should focus on preventing the infection from spreading. Nurses have an important role as educators and advisors in teaching service users and caregivers, providing community health education, and aiding other members of the multidisciplinary team in their development. All nurses should use proper hand washing techniques, maintain a safe social distance, use disinfectant materials such as alcohol, avoid shaking hands, use a tissue when coughing or sneezing on the mouth and

nose, and wear a mask when coughing or sneezing on the mouth and nose to prevent infection transmission (WHO, 2020).

Nurses should also be taught to avoid touching their eyes, noses, or mouths. Encourage the use of separate equipment between shifts, such as stethoscopes, thermometers, saturation probes, and blood pressure cuffs, as well as cleaning and disinfection. Alcohol-based treatments are used to disinfect stethoscopes (Ministry of Health and Population Egypt, 2020).

#### **Significance of the study:**

More than 22,000 healthcare providers (HCPs) have already been infected worldwide (WHO, 2019). Ongoing training for nursing is critical to maintaining high-quality, effective, and efficient nursing care. Training has a significant impact, especially during the COVID-19 epidemic, when clinical expertise is passed down from more experienced to expand their knowledge (Bao et al., 2020). According to the World Health Organization (WHO), health professional's account for roughly 14% of COVID-19 cases globally, and up to 35% in some areas. On February 14, 2020, Egypt's Ministry of Health and Population declared the first COVID-19 infection. In November 2021, there were 276 documented cases and 56 deaths among healthcare professionals (WHO, 2021).

In Egypt 2020 (Ministry of Health and Population in Egypt "MOHP"), the flow rate of patients with COVID-19 has grown. To protect them, they should avoid infection and enhance their awareness and practice of COVID-19

prevention methods. Nurses, in particular, are at a higher risk of serious disease from COVID-19. According to Egypt's minister of health, an underestimation of the total number of cases is expected (Hassany et al., 2020 and Bhardwaj, 2020).

Nurses, in particular, have regular contact with infected patients and play an important role in infection control; as a result, nurses must improve their knowledge and practices on how to prevent infection and restrict the spread of COVID-19 (Lababidi, et al., 2020). Knowledge is the building block for behavior change, whereas belief and attitude are the driving forces behind it. The capacity to offer competent care for COVID -19 patients while preventing infection transmission is one of the essential competencies for nurses (Zhou, et al., 2020). As a result, the availability and proper application of preventative measures are critical in protecting patients as they cope with the COVID-19 epidemic (Armitage & Nellums, 2020). This study aimed to evaluate the effect of instructional guidelines regarding COVID -19 on nurses' knowledge and practices in surgical outpatientclinics and surgical units.

### **Aim of the study:**

The study aimed to evaluate the effect of instructional guidelines regarding Covid-19 on nurses' knowledge and practices in the surgical unit through:

1. Assess nurses' knowledge regarding COVID-19 in surgical unit.
2. Assess nurses' practice regarding COVID-19 in surgical unit.
3. Implement and determine the effect of instructional guidelines regarding COVID

-19 on nurses' knowledge and practices in the surgical unit.

### **Research Hypotheses:**

**H1:** Nurses in surgical unit who are exposed to the instructional guidelines will have higher posttest mean knowledge and practices scores than their pretest mean knowledge scores.

**H2:** There will be a positive correlation between knowledge and practice scores among nurses in the surgical unit after the application of instructional guidelines.

### **Subject and Methods:**

#### **Research design: -**

A quasi-experimental design was used in the current study to achieve the study's objectives. In terms of baseline characteristics; it identified a pre-group that is as comparable to the post-group as possible. There were differences in results between before and after groups (Campbell and Stanley, 2015).

#### **Setting:**

The study was carried out at Surgical Unit at Fayoum University Hospital two days per week (Saturday to Wednesday) from 9 A.m. to 1 P.m. there was a waiting area for patients and a lecture room which involved an adequate number of seats, and data show where the researchers interviewed the recruited patients to conduct this study. This unit was composed of 4 rooms which contained 12 beds. These places provide diagnostic and therapeutic services for patients. These settings were selected because of the high prevalence of patients

in the selected settings and also, it serves the biggest region of the populatio

### **Subjects:**

The study included a convenient sample of all surgical nurses (30 nurses) who worked in the previously selected settings.

### **Sample size:**

The participants were chosen using a convenience sampling technique. The sample size was determined using EpiCalc-2000 based on the following assumptions: the fraction of good knowledge was 50%, the degree of confidence was 95%, and accuracy was 5%,. The sample size was then raised by 5% to account for non-response. During the data collection procedure, security steps were used for 30 nurses were recruited.

### **Tools of data collection:**

**Three tools were used for data collection:**

#### **Tool (I): Demographic structured interview sheet:**

It was developed by the researchers following an extensive review of related literature and included questions about demographic data of nurses such as age, gender, educational level, and years of experience, training courses regarding COVID-19 in the selected settings.

**Tool (II): Surgical nurses' knowledge regarding COVID -19 assessment questionnaire** (pre and post-test):

It is used to assess nurses' knowledge regarding COVID -19. It was adapted from (**Rathnayake, et al., 2021**). It was consisted of six basic components. These were 39 questions and they were as follows:

- These questions addressed the following 15 items: Define COVID-19, Mode of transmission, incubation period, symptoms, risk categories, diagnostic tests, therapy, safety & preventive measures, and control of COVID-19.
- Questions 20-29 about personal protective equipment (PPE) and they included ten items.
- Questions 30-39 about the proper disposal of infected equipment, and they included ten items.

### **❖ Scoring system:**

With a total score of 98, each question received two scores for a complete accurate response, one score for a non-complete answer, and zero for an erroneous response. Those with a score of 70% or more had "satisfactory" knowledge, while those with a score of less than 70% had "unsatisfactory" knowledge.

#### **Tool (III): Surgical nurses' practices regarding preventive measures of COVID -19 observation checklists:**

- The observation checklist was developed by the researcher based on a review of literature, (**World Health Organization, 2020**) to assess the practical aspects of the basic nurses'

practice regarding covid-19. It was consisted of 26 items as follows: -

- Applying hand washing and personal protective equipment cover 8 items.
- Appropriate doffing and disposal of personal protective equipment cover 5 items.
- Application of universal precautions and environmental precautions cover 16 items.

#### ❖ Scoring system:

Each item was given a score of two points for each step that was completed correctly; one point for each step completed incorrectly, and zero points for steps that were not completed with a total score of 52 overall steps. The score less than (70%) = were considered inadequate practice level and (70%) or more was considered adequate practice level.

#### Validity of the tools:

The content validity of the tools was done by a jury of five in the fields of medical-surgical nursing and medicine experts at Fayoum University Hospital.

#### Reliability of the tools:

Test-retest reliability was used. The internal consistency of the tools was calculated using Cronbach's alpha coefficients. Study tools revealed reliability at Cronbach's alpha 0.76 for the tool (II) and 0.84 for the tool (III).

#### Methods of data collection:

The research study was divided into three phases (preparatory, implementation, and evaluation).

#### Preparation phase:

This phase included the following tasks: preparing the data collection tools, which were created by the researchers after examining the necessary literature.

#### A pilot study:

A pilot study was conducted with 10% of the nurses in the sample (3 nurses) to ensure that the study tools were clear and understandable, as well as to make any required changes before data collection. The pilot study was done to estimate the amount of time it would take to complete the study tools. No modifications were done so the pilot study nurses were included in the actual study sample.

#### Ethical considerations:

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Written consent was obtained from nurses after explaining the nature and purpose of the study. Confidentiality and anonymity were assured. The study nurses had the right to refuse to participate and/or withdraw from the study without any rationale at any time. Official permission was obtained from the Dean of Faculty of Nursing and the Chairman of the previously selected settings.

#### The instructional guidelines:

After reviewing the literature and identifying the needs reported by the

nurses following the pre-test, the researchers developed nursing instructional guidelines, handouts, teaching materials, PowerPoint videos, and journals. The instructional guidelines were used in the seminar room and were written in a simple Arabic language, with images, diaries, and handouts, as well as videos, being used to supplement the training.

It was written in easy Arabic and included photographs and illustrations to assist the nurses in comprehending the content. The following processes were used to generate the instructional guidelines:

- Outlining the overall and specific goals of the instructional guidelines.
- Planning of instructional guidelines: the guideline's material was divided into three sessions, plus a preliminary session.

**The instructional guideline's material was divided into two sections, theoretical section, and practical section.**

**The theoretical section included:**

- Definition of COVID -19
- Causes
- Mode of COVID -19 transmission
- Symptoms
- Diagnostic method
- Preventive measures and treatment of COVID -19 infection

**Practical part included:**

- Hand washing and kinds of protective precautions for COVID -19 include wearing a mask, coverall, gown, and apron, internal and exterior gloves during

patient care, and changing gloves between tasks and patients.

- Appropriately disposing of personal protective equipment.

**Implementation phase:**

- The intended study was given official approval to begin. The data was gathered using the previously chosen settings.
- The researchers introduced themselves to the nurses at the start of the interview.
- Knowledge assessment test completed after the nurse was informed of the study's aim and before answering the questions using tool (II).
- During each procedure, the research observed by using an observational checklist to complete the pre-instructional guidelines practice test regarding covid-19 utilizing the instrument (III).
- Each nurse in the study was assessed for knowledge, using tool (II), and practice using tool (III), twice during each procedure, before to and after the adoption of instructional guidelines. The instructional guidance sessions were scheduled by the researchers. The nurses were separated into small groups based on the best time to present and their readiness to do so. Each group comprised five to six nurses. In addition to the initial session, the educational instructions include three sessions. Each session lasted between 30-45 minutes.

**Preliminary session:**

- This session includes an overview of the instructional guidelines, as well as the distribution and completion of the present sheet by participants (30 minutes)

- Definition of infection, COVID -19, mechanisms, incubation period, and symptoms are covered in session I (30 minutes).
- Demonstrate nursing care during COVID -19 and all protective measures in session II (30 minutes).
- Demonstrate the layout of protective equipment removals in session III (30 minutes).
- To ensure knowledge and attainment of specified objectives of the instructional guidelines, group discussion was encouraged with constant feedback.
- In the seminars, pictures and videos of the procedures were utilized to demonstrate them.
- The researcher highlighted and underlined the key themes in the final session.
- Every nurse in these departments received a copy of the booklet as a guide after completing the instructional requirements.

#### Evaluation phase:

Every nurse included in the present study was evaluated by researchers using a tool (II) and tool (III) before the implementation of the instructional guidelines and one month after application of the program to evaluate the effectiveness of instructional guidelines on nurses' knowledge and practices.

#### Statistical analysis

The IBM SPSS 20.0 program was used to conduct all of the analyses. Before statistical analysis, the data were checked for normality and homogeneity variances using the Anderson-Darling test. Continuous variables were defined by mean and standard deviation, while categorical variables were described by

number and percent (N, percent) (Mean, SD). The chi-square test and the Fisher exact test are used to compare categorical variables, whereas the t-test and ANOVA TEST are used to analyze continuous variables. Statistical significance was defined as a two-tailed  $p < 0.05$ . To appear the association between scores, we used person correlation.

#### Result

**Table (1):** According to the demographic characteristics of the studied nurses, 73.3 % of the nurses were under the age of 35 years, 80% were female, and 87 had a technical institute diploma, and 13% had higher education in nursing. Furthermore, the majority of the nurses (60%) had from 1 to 3 years of experience.

**Figure (1):** Demonstrated that only 39% of the studied nurses received training courses regarding COVID-19 before.

**Figure (2):** Portrayed that 83% of the studied nurses reported that their main source of information about knowledge regarding COVID-19 was doctors.

**Tables (2) and (3):** showed that after the educational intervention, the all of nurses had satisfactory knowledge of COVID -19 in all categories compared to before the intervention. Nurses' knowledge of Covid-19 data improved significantly after implementing the instructional guidelines. There was a significant difference in nurse knowledge on COVID -19 before and after one month of guidelines ( $P < 0.001$ ).

**Figure (3):** showed the total practice scores of the nurses before and after receiving COVID-19 instructional guidelines. Before the instructional

guidelines, it was revealed that (81%) of the nurses had inadequate practice with COVID-19, which dropped to 2% after the intervention. However, only 19% of the nurses in the study had adequate practice before the instructional guidelines, but after one month, 98 percent of nurses increased their practices score with a statistically significant difference.

**Table (4):** It was noticed from that, the high percent of nurses not have enough knowledge regarding preventive measures about COVID -19 before the implementation of the instructional guideline. After guidelines implementation, highly statistically significant improvements were observed in nurses' knowledge about the preventive

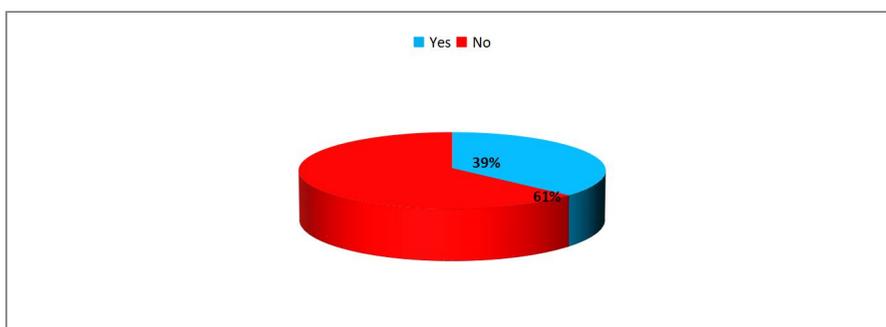
measures regarding COVID -19 in all tested areas ( $P < 0.001$ ).

**Table (5):** showed the correlation between the total score of nurses' knowledge and practice pre and post the instructional guidelines; there was a significant positive correlation between the score of knowledge and the score of practice with statically significant differences ( $p < 0.05$ ).

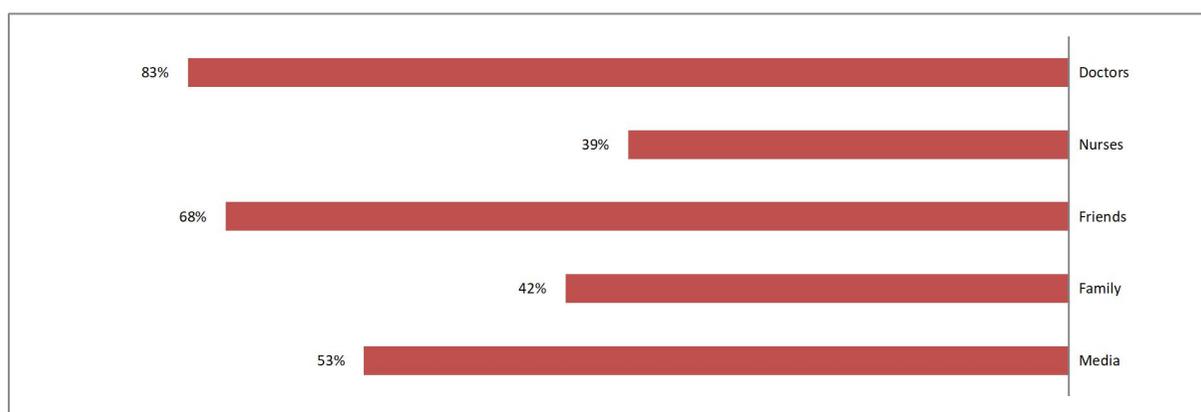
**Table (6):** Illustrated nurse's evaluation about prepared instructional guidelines, all (100%) reported that the content of the instructional guidelines answered all of their questions, (90%) found that the instructional guidelines were helpful in prevention COVID-19, beneficial, and written in a simple language.

**Table (1):** Distribution of the studied nurses regarding their demographic characteristics (n=30).

Demographic characteristics	No	%
<b>Age:</b>		
- < 35	22	73.3
- > 35	8	26.7
Mean $\pm$ SD		35.7 $\pm$ 7.2
<b>Gender:</b>		
- Male	6	20
- Female	24	80
<b>Educational level</b>		
- Technical institute diploma	26	87
- Higher education	4	13
<b>Years of experience</b>		
- >1	6	20
- 1-3 years	18	60
- 3< years	6	20



**Figure (1):** Distribution of the studied nurses regarding their training courses regarding COVID-19 (n=30).



**Figure (2):** Distribution of the studied nurses according to their source of knowledge regarding COVID-19 (n=30).

**Table (2):** Distribution of the studied nurses' knowledge regarding COVID-19 pre and post instructional guidelines (n=30).

Nurses' knowledge	No = (30)		P-value
	Pre instructional guidelines (No/%)	Post instructional guidelines (No/%)	
Definition	12(40)	30 (100)	<0.001*
Mode of transmission	18 (60)	30 (100)	<0.001*
Incubation period	12(40)	30 (100)	<0.001*
Symptoms	13(43.3)	30 (100)	<0.001*
Risk factors	13(43.3)	30 (100)	<0.001*
Diagnostic tests	9(30)	30 (100)	<0.001*
Treatment	15(50)	30 (100)	<0.001*
Personal protective equipment	15(50)	30 (100)	<0.001*
Proper disposal of infected equipment	15(50)	30 (100)	<0.001*

\*highly significance at 0.001 levels

**Table (3):** The total knowledge score level of the studied nurses regarding COVID-19 pre and post instructional guidelines (n=30).

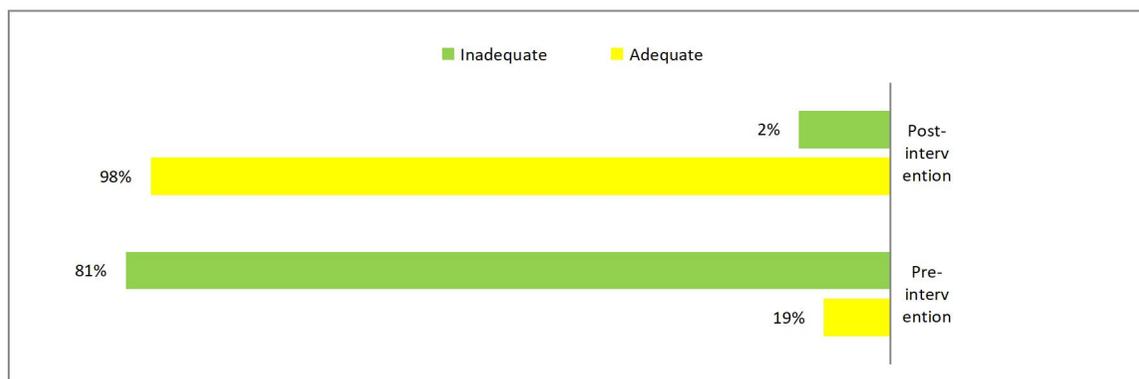
Total knowledge	Pre instructional guidelines		Post instructional guidelines		T	P-value
	No	%	No	%		
Satisfactory	12	40	30	100	5.042	<0.001*
Unsatisfactory	18	60	0	0.0		

\*highly significance at 0.001 levels

**Table (4):** Distribution of nurses' knowledge regarding the preventive measures of COVID-19 pre and post the implementation of the instructional guidelines.

Preventive measures	No =(30)		p-value
	Pre	Post	
Hand washing	18(60)	30 (100)	<0.001*
Wearing mask	24(80)	30 (100)	<0.001*
Use disinfectant materials as alcohol	15(50)	30 (100)	<0.001*
Avoid shaking hands	12(40)	30 (100)	<0.001*
Social distance	12(40)	30 (100)	<0.001*
Put a tissue when coughing or sneezing on the mouth and nose	22(73)	30 (100)	<0.001*

More than one answer was reported by the studied mothers \*Significance at 0.0001 levels



**Figure (3):** The total practices score level of the studied nurses regarding COVID -19 pre and post-one-month instructional guidelines (n=30).

**Table (5):** Correlation Co-efficient between the knowledge scores and practices scores pre and post-implementation of the instructional guidelines.

Correlation	Practices scores	
	R	P
<b>Knowledge score</b>		
<b>Pre instructional guidelines</b>	0.173	0.367
<b>Post instructional guidelines</b>	0.372	0.046*

\*Correlation is significant at the 0.05 level

**Table (6):** Nurse's evaluation of the instructional guidelines regarding COVID -19 (n=30).

Nurse's evaluation of the instructional guidelines regarding covid-19	No	%
The instructional guidelines responded to all of the questions.		
• Yes	30	100
• No	0	0.0
The instructional guidelines have been created in such a way that they will be helpful.		
• Yes	30	100
• No	0	0.0
COVID-19 preventive instructional guidelines were beneficial.		
• Yes		
• No	30	100
	0	0.0
The instructional guidelines were written in a simple language		
• Yes	30	100
• No	0	0.0

## Discussion:

In healthcare teams entrusted with controlling and preventing the spread of infectious diseases, nurses play a critical role. Nurses are also on the front lines, providing direct treatment to those infected with COVID -19 (**Chen et al., 2020**). Nursing staff should follow instructional standards to help them develop and improve the skills they need to provide high-quality care to patients (**Slater et al., 2018**).

This study aimed to see if establishing instructional guidelines on COVID -19 at the surgical unit will improve nurses' knowledge and practices. As a result of the study's findings, nurses'

knowledge and practice in these settings increased dramatically. The findings lead to acceptance of the hypotheses as well as proof of the effectiveness of the instructional guidelines.

According to the findings of this study, only about three-quarters of nurses are under the age of 35. This finding is corroborated by **Nemati et al., (2020)**, who assessed nurses' knowledge of COVID -19 during their time in Iran and reported that the majority of them were under the age of 40 years.

However, **Abd-Elhamid et al., (2016)** found that more than two-thirds of nurses were over 40 years old when they studied "Impact of Training Education

Program on Improving Nurses Performance Regarding Infection Control in Unit" and reported that more than two-thirds of nurses were over 40 years old.

According to the findings of this study, the majority of nurses were female. This conclusion corresponds to **Saadeh and colleagues (2020)** study of "Knowledge, Attitudes, and Behaviors regarding the Coronavirus Disease 2019 (COVID19) among 311 nurses in Lebanon," which revealed that almost three-quarters of them were female. This is similar to the **Nemati et al., (2020)** study, which evaluated nurses' understanding of COVID -19 in Iran and identified nurses as participants. The majority of the study's participants were female.

The majority of nurses received a technical institution education, according to the findings of this survey. **El Ghaty et al., (2013)** conducted a study in Abha, Saudi Arabia called "Impact of Universal Infection Control Intervention Program for Nurses at Asser Hospital Medical-Surgical Nursing Department, Faculty of Nursing, King Khalid University," and found that the majority of nurses had diploma nursing while minority of them had bachelor degree in nursing.

According to the findings of this survey, less than two-thirds of nurses had one to three years of experience in their settings. This conclusion agrees with **Nemati et al., (2020)** who found that more than a third of the participants had less than five years of work experience.

In contrast, **Soliman, (2018)** discovered that slightly more than half of the nurses in Mansoura had more than 10 years of experience in his study "Effect of in-service Educational Program for

Nurses about Infection Control Precautions on their Practice."

According to the findings of this study, over two-fifth of the nurses surveyed had previously received COVID-19 training. According to the researchers, it can be explained by the assumption that training within the unit is insufficient; it might also be related to a lack of interest among nurses in surgical unit regarding to guidelines.

This finding is similar to that of **Talaat et al., (2016)**, who looked into the "Evolution of infection control in Egypt" and found that the experience of developing and implementing a program in Egypt revealed many constraints common in developing countries, such as a lack of trained health care professionals.

This study's findings are consistent with those of **Abolwafa et al., (2013)**, who investigated "Developing an educational program for Nurses' Related to Infection Control of Invasive Procedures" at EL-Minia University and General Hospitals and discovered that only about ten percent of the sample had previously attended infection control training courses. Furthermore, according to **Hosoglu et al., (2017)** who conducted a study in Turkey on "Health care workers' compliance with universal precautions," just about a third of the participants had undergone disease prevention training.

According to the findings of this study, doctors were the primary source of information about COVID -19 for the vast majority of the nurses surveyed. This finding is consistent with **Albarrak et al., (2019)** study on "Comparing the knowledge, attitude, and practices of different health care workers," which

found that the most common source of information for nurses is seminars and workshops held by doctors.

The results of this study demonstrated that after following the instructional guidelines, nurses' knowledge of COVID -19 improved and was satisfactory. This indicated that there was a lack of expertise, which could endanger the patient and nurses during the surgical operation, as well as cause infection and health problems in the nurses and patients. However, after receiving instructional guidelines, the intervention had a positive influence on nurses' knowledge.

These findings are in line with those of **Shabaan et al., (2021)** who investigated "Adapting of (NANDA) Nursing Process as an Approach of Care for Covid-19" and found that three-quarters of the study sample had a sufficient level of knowledge instructional guidelines, with a significant difference.

Similarly, **Huynh et al., (2020)** investigated "Knowledge and attitude toward COVID -19 among healthcare workers at District Hospital, in Minh City," and found that after program intervention, the majority of HCWs at the District Hospital had good knowledge and a positive attitude toward COVID -19.

These findings matched those of **Elgzar et al., (2020)**, who studied "Effect of an Educational Intervention Based on Health Belief Model on Nursing Students' Awareness and Health Beliefs" at Najran University in the Kingdom of Saudi Arabia and found a significant difference in awareness related to COVID -19 after the intervention.

**Elshenawie et al., (2020)** conducted a study titled "Impact of Educational Program Regarding Safety Measures Guidelines on Nurses' Knowledge, Attitude, and Practice toward COVID -19 Patients" and discovered that the total score of nurses knowledge regarding care for COVID -19 patients improved with a positive statistical significance difference after implementing the educational program.

**Elasrag et al., (2021)** discovered that before the intervention, one-tenth of the nurses tested had high knowledge, and more than two-thirds had poor knowledge, whereas slightly more than three-quarters had good knowledge after intervention and less than one tenth had poor knowledge.

Teaching programs for nursing staff, according to Slater et al., (2018), play a vital role in assisting staff nurses in developing and enhancing their abilities needed to offer high-quality care to their patients. This was supported by the current study, which found that after implementing the nursing educational program, nurses' knowledge and practice improved.

However, these findings contradict those of **Nemati et al., (2020)**, who conducted a study titled "Assessment of Iranian nurses' awareness and worry toward Covid-19 during the present outbreak in Iran." At the time of the pre-assessment, they reported that nurses had acceptable knowledge of COVID -19.

According to the findings of this study, all nurses' practices improved following one month of instructional guidelines, with a statistically significant difference. This demonstrated the

effectiveness of the instructional guidelines as well as their positive impact.

**El Ghaty et al., (2013)** showed highly statistically significant differences in nurse practice before and after program implementation, which is consistent with this finding. Furthermore, **Gijare, (2018)** looked into the "Effectiveness of education on infection control practices among health care professionals" and found a highly statistically significant difference in total infection control protocol practice among nurses during the posttest, indicating that the overall effect of training was positive.

The current study discovered statistically significant differences across nurse practice categories in the pre-test and post-test, demonstrating adequate practice following the instructional recommendations. This was in line with **Koo et al., (2016)** who did a study titled "Making infection prevention education interactive can enhance knowledge and improve results" and found that attending continuing nursing education sessions improved nurses' practice. Nursing instructional guidelines, according to research, improve knowledge, practice, and attitudes.

The current study supports the findings of **Elshenawie et al., (2020)** who found that after adopting an educational program, the mean total score of nurses' practice in caring for COVID -19 patients improved significantly. However, the findings of the study "Factors determining the knowledge and prevention practice of healthcare workers towards Covid-19 in Amhara region, Ethiopia" conducted by **Asemahagn (2020)** who studied "Factors determining the knowledge and prevention practice of healthcare workers towards COVID -19"

and found that participants had good COVID -19 practices.

The overall score of nurses' knowledge and practice before and after the instructional guidelines was shown to have a statistically significant link in the current study. This link explains the fact that increasing information leads to increased practice. In addition, the nurses in the study were able to practice effectively when they got enough knowledge.

This research aligns with **Ozekcin et al., (2015)**, who investigated "Simulation education: early diagnosis of patient physiologic deterioration by acute care nurses" and found that nursing instructional guidelines were beneficial in increasing staff nurses' knowledge and practice.

These findings are consistent with **Gabr, Seif, and Allam (2020)**, who found a substantial positive association between the study group's knowledge and practice of COVID -19. Another study conducted in Iran by **Erfani et al., (2020)** on "Knowledge, Attitude, and Practice Regarding the Novel Coronavirus (COVID19) Epidemic" revealed a high link ( $P = 0.001$ ) between the participant's knowledge, attitude, and practice.

Furthermore, in a study titled "Impact of Educational Intervention on Nurses' Knowledge, Practice, and Attitude Related Prevention Measures of COVID-19," **Elasrag et al., (2021)** found a strong link between nurses' knowledge and practice. The current findings are consistent with those of **Saqlain et al., (2020)** who found a positive correlation between knowledge, attitude, practice, and perceived barriers among healthcare professionals regarding COVID -19 in

their study "Knowledge, attitude, practice, and perceived barriers among health-care professionals regarding COVID -19."

Furthermore, **Zhong et al., (2020)** who studied COVID -19 knowledge, attitude, and practice among Henan healthcare personnel, found that knowledge influences the use of preventive interventions. The findings of the study correspond with those of **Elshenawie et al., (2020)** who found a link between study nurses' knowledge, attitude, and practice of safety measures recommendations in caring for COVID -19 patients after two months of implementation.

The results of this study showed that nurses' evaluations of the generated instructional guidelines increased their knowledge and practices and were favorable, with all of them stating that the content of the instructional guidelines answered all of their questions. According to the researchers, this indicated that the COVID -19 instructional guidelines were well implemented among surgery unit nurses. These findings were backed up by **El-Maghawry & El-Hawy, (2019)** who found that short-term in-service training can significantly increase nurses' knowledge and practice of infection control methods.

Finally, the results of this study confirmed the research hypothesis that nurses working in surgical units who are exposed to COVID -19 instructional guidelines will have a higher knowledge and practice score after the exam (posttest) than before (pretest).

### **Conclusion:**

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Based on the results of the present study, the study findings concluded that the results support the research hypothesis in which instructional guidelines for nurses' help in improving their knowledge and practices levels regarding COVID -19 with significant differences after the instructional guidelines. There was a significant positive correlation ( $P=0.001$ ) between nurses' knowledge scores and their practices post-one-month of instructional guidelines implementation.

### **Recommendations:**

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**Based on the current study results, the following recommendations are proposed:**

- Implementation–service training program for nurses to improve their knowledge and practices regarding COVID -19.
- Illustrated videos regarding practices of COVID -19 should be available to be distributed to each nurse.
- Using media to raise nurses' awareness regarding COVID-19 in all crowded settings.
- Replication of the current study with a larger sample of nurses in different settings is required for generalizing the results.

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