

## **Nurses' Knowledge, Attitude and Practices toward Covid-19 in Maternal and Child Health Centers at Assiut city**

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### **Abstract**

**Background:** Coronavirus disease 2019 (COVID-19) has been rapidly and internationally spreading, with detrimental impacts on economy and health. A vital part of medical care is nursing, and nurses' skills, attitudes, and knowledge about the prevention and control of the disease directly affects patient's outcomes during the COVID-19 epidemic. **Aim:** To assess nurses' knowledge, attitude, and practices toward Covid-19 in maternal and child health Centers. **Methods:** Descriptive research design. **Settings** Maternal and Child Health centers at Assiut City included 110 Nurses. **Tools: Included Tools (I) part (1):** Personal data, **part (2):** Nurses' knowledge. **Tool (II):** Nurses' attitude toward Covid-19. **Tool (III):** Observational checklist of Nurses' practices toward coronavirus disease 2019. **Results:** shown that 67.3% of Nurses Were had a low knowledge score, 58% had positive attitude regarding the coronavirus disease and 66% of them were had unsatisfactory practices. there was statistically significant difference between the nurse' age and years of experience with total Knowledge, there was not statistically significant difference between the nurse' age and Level of Education with total attitude and there was statistically significant difference between the nurse' age and Years of experience with total practices. **Conclusion:** The majority of the nurses who were studied had poor scores of knowledge and positive attitudes regarding coronavirus disease, the most of them engaged in unsatisfactory practices. **Recommendations:** In-services training programs about coronavirus disease should be focus on maternal and child health nurses.

**Keywords:** *Attitude, Practices, Coronavirus disease 2019, Knowledge, Maternal and child health centers & Nurses.*

### **Introduction**

As of March 2022, the world's population had experienced a catastrophic impact from the highly contagious infectious disease known as COVID-19, or severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). Globally, the pandemic has claimed over 6 million lives, establishing it as the deadliest worldwide health disaster since the 1918 influenza pandemic. (Casella et al., 2022).

In Wuhan, China, the first case of new coronavirus pneumonia was discovered. Before the end of December 2019, The WHO deemed the COVID-19 pandemic a global health crisis on January 30, 2020. As of April 29, 2020, the WHO announced that 213 countries worldwide had reported approximately 3 million confirmed cases of COVID-19, including 202,733 deaths(Wen et al., 2021).

In Egypt, 6:52pm, 15 June 2022, there have been 514,800 confirmed cases of COVID-19 with 24,720 deaths, reported to WHO As of 5 June 2022, a total of 86,132,442 vaccine doses have been administrated (WHO, 2022<sub>d</sub>).

COVID-19 can infect people of all ages, however certain people are at a higher risk for infection include pregnant, neonate, Preschool and infants,

Adolescents, old age, male gender, long period hospital staying persons, health care workers, chronic diseases patients and Smokers (WHO,2023, & Mohamed et al., 2023).

COVID-19 is spread via respiratory droplets inhaled, which contain the virus or touching a contaminated objects or surfaces. The incubation time spans from two to fourteen days. (National Center for Immunization and Respiratory Disease (NCIRD), 2020).

COVID-19 effects on all body organs and the most common affected organs are lung, liver, heart, kidney, hematological, neurological and gastrointestinal systems so the symptoms which appears due to infection depend on its severity (mild, moderate or severe) and which organs has been affected. The most common signs and symptoms appears on infected persons are fever and cough followed then by shortness of breath, fatigue, muscle pain, dyspnea, headache, hemoptysis, and diarrhea. However, a few patients may experience more serious side effects such acute respiratory distress syndrome, sepsis, septic shock, pulmonary edema, and severe pneumonia ( Seyed et al, 2020., CDC, 2021<sub>a</sub>. & Desai et al, 2022).

Diagnosis of COVID-19 infection depends mainly on polymerase chain reaction (PCR) which consider the most accurate and reliable diagnostic test for COVID-19, antigen test, D-dimer, and CT scan. Currently, different vaccines became available for human using as Pfizer-BioNTech, Moderna, Johnson; Johnson, Oxford-AstraZeneca, Novavax, Sinopharm and Sinovac. Now Egypt is manufacturing Sinovac vaccine at VACSERA factories through cooperation with China. (Zheng et al, 2020., Zayed et al, 2021., WHO, 2021c. and Forum on China–Africa Cooperation (FOCAC), 2021).

Most COVID-19 infections are mild, and most patients can recover at home. Symptoms can be treated with over-the-counter medicines, The therapeutic benefit of Treatments vary based on the condition's severity and the existence of specific risk factors. Available therapy to treat COVID-19 include: Antiviral medications (e.g., remdesivir), anti-SARS-CoV-2 monoclonal antibodies (e.g., bamlanivimab/etesevimab, casirivimab/imdevimab), anti-inflammatory pharmaceuticals (e.g., dexamethasone), and immunomodulators agents (e.g., baricitinib, tocilizumab) are among the currently existing therapy alternatives. (Coopersmith, et al., 2021)

Prevention of Covid-19 consist of wearing Personal Protective Equipment (PPE), hand washing, using disinfectant and cleaning surface, keeping rooms well ventilated, coughing into a bent elbow or tissue, avoid touching face (eye, nose, mouth), avoid eating outside, avoid shaking hands and kissing others, follow social distancing, avoid public transportation. Closely monitor personal physical health and health of others, persuade people to follow precautionary measures, avoid direct contact with possible or +ve COVID- 19 patients and health care workers, quarantine and Staying Up to Date with COVID-19 Vaccines (WHO,2020, Mandavkar, 2020 & CDC,2021).

In MCH facilities, providing nursing care is different than in hospitals, because the target of service expands beyond the individuals to include families, groups and communities. As well as they should collaborate with other community groups to contain this pandemic. MCHNs were responsible to seek information about COVID-19 and practice preventive and supportive protective measures to curb the transmission of COVID-19 that include hand hygiene, Personal Protective Equipment (PPE), crowd avoidance, social distancing, proper etiquette when coughing and sneezing and raising public awareness about COVID 19 (Banik et al., 2020).

#### Significance of the study:

COVID-19 pandemic expanded at a frightening rate. Compared to SARS or MERS, it has resulted in a gre

ater number of cases, SARS-CoV-2 is thought to be more contagious. The most vulnerable groups to death are the elderly and immunocompromised patients.(Hassan et al., 2020).

In Egypt, from 3 January 2020 to 6:52pm, 15 June 2022, there have been 514,800 confirmed cases of COVID-19 with 24,720 deaths, reported to WHO. As of 5 June 2022, a total of 86,132,442 vaccine doses have been administrated (WHO, 2022<sub>a</sub>).

Studying nurses' knowledge, attitude and practice of COVID-19 with protective measures is necessary as MCH Nurses are the backbone of the healthcare system and a well knowledge, adept and healthy work personnel is vital during a health crisis, especially the present coronavirus disease 2019 (COVID-19) pandemic.

#### The current study aimed to:

Assess Nurses' knowledge, attitude, and practices toward Covid-19 in Maternal and Child Health Centers, through:

1. Assess the level of knowledge of nurses about Covid-19 in MCH centers at Assiut city.
2. Assess the attitudes of nurses about Covid-19 in MCH centers at Assiut city.
3. Assess practices of nurses about Covid-19 in MCH centers at Assiut city.

#### Research question:

1. What are the levels of knowledge, attitude and practices of MCH nurses' regarding COVID 19?
2. Is their relation between MCH nurses' personal data and their knowledge, attitude and practices regarding COVID19?

#### Subject and Method

##### Research design:

A descriptive cross-sectional research design was used in this study.

##### Setting:

Global health systems have faced challenges as a result of the COVID-19 pandemic which have resulted in a compromise on maternal and child health (MCH) care , As it conduct maternal and child health care services, immunization services, family planning services, president's initiatives (100 days of health, premarital examination, early detection and treatment of cancer.....), output patient clinic, dental care and minor laboratory services , So that the study was conducted in maternal and child health centers at Assiut city.

##### Sample:

**Sample size** convenient sample used for nurses in East & West MCH centers in Assiut City. The total numbers in this study were (134) nurses; (24) nurses were not included since 3 of nurses were retired during data collection, 10 refused to be included in

the study and 11 were in maternity vocation to become the sample size (110) nurses.

#### **Sample technique:**

The total number of all MCH centers at Assiut City consisted of 20 MCH, divided into 11 at East Assiut and 9 at West Assiut. The present study conducted in 6 Maternal and Child Health (MCH) centers in Assiut City were split up to 3 in East Assiut: Found Walidya health center, Nazlet Abdallah health center, Feryal child care and 3 in West Assiut: Mubarak health center, Khames health office and Qlta child care which selected randomly by putting MCH centers names of the East in a box and select three of them randomly, and do the same for the West.

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

A structured self-administered questionnaire was developed by the researchers to collect necessary data; sheet was designed in Arabic form and after reviewing related literature; proper tools were used for data collection. It is consisting of three tools

#### **Tool (1): It included two parts:**

**Part 1:** personal data of MCH nurses: include name, sex, age, Parental status, Years of experience, level of education, Occupation and Area of residence.

**Part 2:** Assess the knowledge of nurses about Covid-19: it included 18 questions such definition, Causes, signs & Symptoms, mode of transmission, Incubation period and measures to prevent the spread of disease.

#### **The scoring system for knowledge:**

The total grades of knowledge were 77 for 18 items. The answers were graded: 2 for complete correct answer, 1 for incomplete correct answer and 0 for incorrect answer and didn't know respectively. Total score was calculated by summing up and converted into percent score as the following: Poor score = < 50 %, Fair = 50-70% and Good = >70% (Khalaf et al., 2015).

#### **Reliability of the tool:**

Reliability was applied for testing the internal consistency of the tool. The Value of Cronbach's alpha was 0.727.

**Tool (2): The attitude of MCH nurses about Covid-19:** Attitude COVID19 was assessed by using rating scale. Five points Likert scale (strongly agreed, agreed, uncertain, disagreed, and strongly disagreed). Likert Scale adapted from Spector, (1992), is used to assess the attitudes of nurses toward protective measures against Covid-19: It has 23 questions about attitude against Covid-19, consists of five statements (Albahri et al., 2021).

Each statement reporting nurses' attitude during work such as: hand hygiene both prior to and during MCH center entry, COVID19 infection is a treatable, sanitizing and disinfecting all surfaces and objects are necessary to avoid infection, using masks, participating in COVID19-related training and

educational initiatives. Nurses are more susceptible to contracting COVID-19. This risk can be mitigated by wearing the standardized protective equipment's, fear of possible infection of a family member, medical help if infection had happened, whether MCH center had enough resources for containing this epidemic or not, deciding whether to get Vaccination against COVID-19 and if it effectively prevents infection. (Zhong et al., 2020)

#### **Scoring system of Attitude:**

The answers were graded for each positive statement has response as Strongly Disagree (1) –Disagree (2) – uncertain (3) –Agree (4) – Strongly Agree (5). The higher scores indicate positive Nurse Attitude toward Covid-19 after adding up all of the scores, the total score is transformed to a percentage. MCH nurses' attitude score of 60% or more indicates a positive attitude, whereas a score of less than 60% indicates a negative attitude. (Solliman et al., 2013)

#### **Reliability of the tool:**

The value of Cronbach's alpha was 0.873.

#### **Tool 3: MCH nurses' practice observational checklist:**

Was created in compliance with the WHO's published guidelines, (2020) concerning COVID-19 precautionary measures, modified by the researchers. It included 19 items such as Hand Hygiene, wearing mask, social distance and encourage vaccination practices.

#### **Scoring system of the tool:**

Score one if the task was completed and zero if it wasn't. Achieving < 50% is seen unsatisfactory, while  $\geq 50$  % considered satisfactory (Abd elhamed & Hasab Allah, 2022) (Khalaf et al., 2015).

#### **Reliability of tool:**

The value of Cronbach's alpha reliability test was 0.854.

#### **Validity of the study tools:**

The face validity of the tool was reviewed by five (5) experts in community health nursing, Assiut University to evaluate the validity of the tools. Every member was requested to review the tool content and its structural design to ascertain, completeness and clarity of the items of questions. All comments and suggestions were considered and reworded and sequence of some statements was carried out accordingly.

#### **Methodology:**

##### **Administrative Phase:**

1. To gather the required data for this study, a formal letter of approval was acquired from the Dean of the Faculty of Nursing and the responsible authorities previously specified in the research setting.
2. An oral agreement was taken from the Headmaster of the Health institution to take part in the research after exploration of the aims of the study.

3. Data was collected by the researcher from the permission in the study.
4. The tool's validity will be examined by five nursing staff professionals an index of content validity was computed. Modifications were done before actual data collection.

**Pilot study:**

Pilot study was conducted prior to beginning data gathering on 10% of total calculated sample (11 cases). The time of pilot study was in November 2021, Test the tools' clarity and calculate how long it would take to complete the questionnaire were the main objectives of pilot study. No changes were made to the tool in response to the findings of a pilot trial.so that it was incorporated in the study.

**Data collection phase:****Ethical considerations**

1. The Faculty of Nursing at Assiut University's Ethics Committee authorized the research proposal.
2. Study participants are not at risk while the research is being applied.
3. Clinical research ethics guidelines were adhered to by the study.
4. Participants in the study were free to decline to participate, to leave the study at any moment, and to do so without giving a reason.
5. Confidentiality and anonymity were assured.

**Field work:**

Data began to be gathered on first of November 2021 to the end of January 2022. The researchers provided an overview of the study's objectives and the primary components of the nurses' questionnaire after introducing herself. Every nurse who volunteered to take part in the study gave the researcher their informed oral consent.

To get the required data, the researcher conducted individual interviews with each nurse based on their available work schedule. In light of the nurse's responses, the average time to complete each questionnaire was between fifteen and twenty minutes. Approximately three to four sheets of the observational checklist were completed each day by the researcher. These are all done during the morning shift, three days a week, at MCH centers.

**Statistical analysis:**

Data entry and analysis were completed using SPSS version 25 "Statistical Package for Social Science". Number, percentage, mean, and standard deviation were used to display the data. To compare different qualitative variables, the chi-square test was applied. The measurement of correlation between quantitative variables was done using Pearson correlation. P-value considered statistically significant when its value  $\leq 0.05$ .

**Results****Table (1): Distribution of the participated Nurses according to their personal data at Assiut City**

		N.(110)	(%)
Age groups	<20	1	.9
	20<30	31	28.2
	30<40	27	24.5
	40<50	39	<b>35.5</b>
	50 and more	12	10.9
	Mean± SD	<b>39.22 ±10.25</b>	
Sex	Male	10	9.1
	Female	100	<b>90.9</b>
	Total	110	100.0
Occupation	Head nurse	16	14.5
	Staff nurse	94	<b>85.5</b>
Level of education	Intermediate school	68	<b>61.8</b>
	Technical health school	28	25.5
	Bachelors	14	12.7
Years of experience	1-10	31	28.2
	11-20	24	21.8
	21-30	41	<b>37.3</b>
	More than 30 y	14	12.7
Area of residence	Rural	26	23.6
	Urban	84	<b>76.4</b>
Household	1person	11	10.0
	2person	7	6.3
	3-5person	44	<b>40.0</b>
	6person	34	31.0
	More than 6	14	12.7

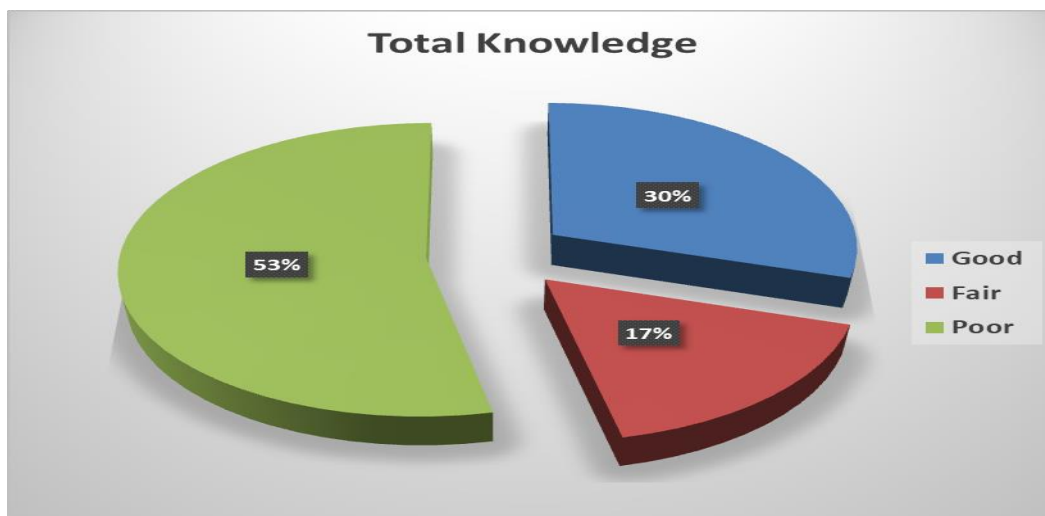


Figure (1): Total score of studied nurses' knowledge regarding COVID 19 at Assiut City

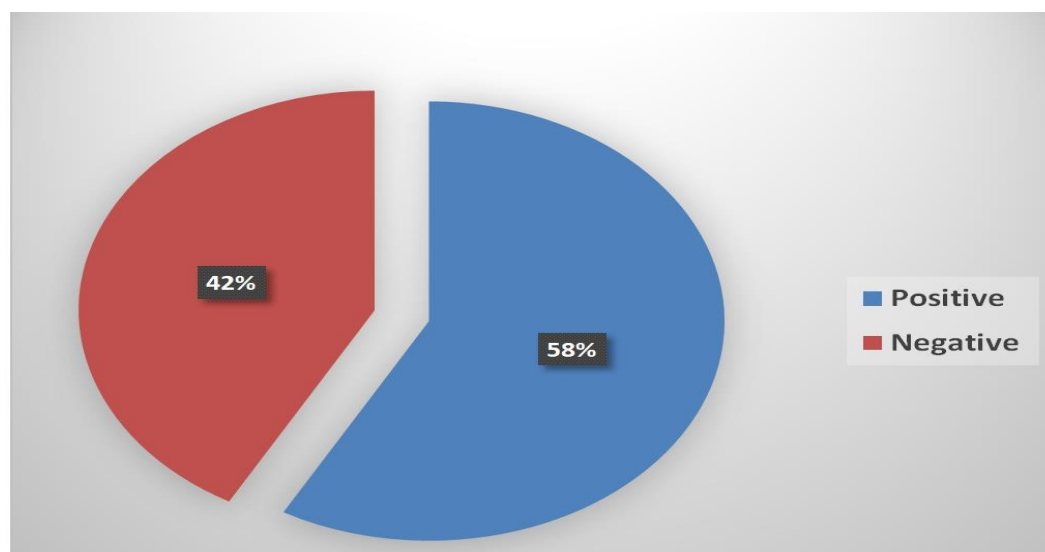


Figure (2): Total score of studied Nurses' attitude toward COVID19 at Assiut City

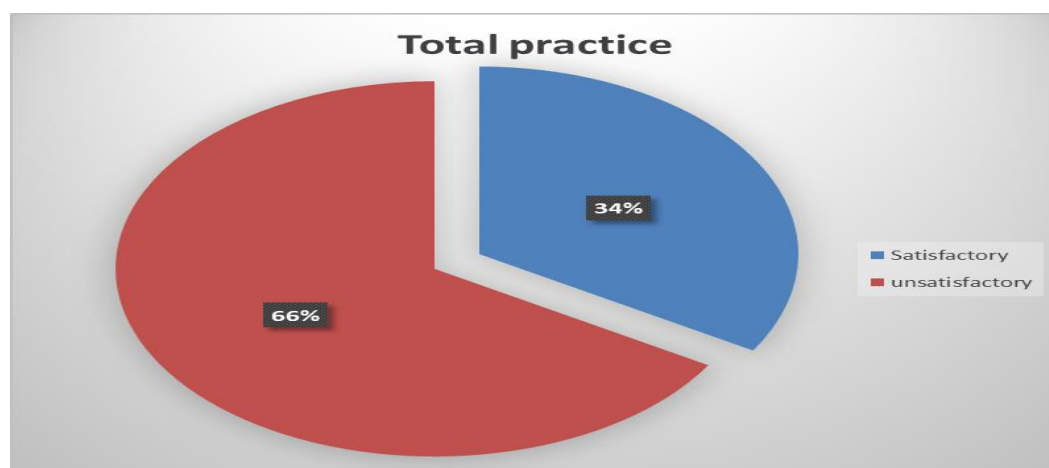


Figure (3): Total score of studied Nurses' practices regarding protective measures of Covid 19 COVID19 at Assiut City

**Table (2): Relation between total knowledge and demographic data of studied nurses' knowledge regarding COVID 19 at Assiut City**

Total Knowledge		Good		Fair		Poor		P
		N.(33)	(30%)	N.(19)	(17%)	N.(58)	(53%)	
Age groups	<20	0	0.0	0	0.0	1	0.9	<b>0.001*</b>
	20<30	10	9.1	5	4.5	16	14.5	
	30<40	10	9.1	2	1.8	15	13.6	
	40<50	9	8.2	10	9.1	20	18.2	
	50 and more	4	3.6.8	2	1.8	6	5.4	
Sex	Male	1	0.9	2	1.8	7	6.4	<b>0.001*</b>
	Female	32	29.09	17	15.5	51	46.4	
Level of education	Intermediate school	22	20.0	12	10.9	36	32.7	<b>0.131</b>
	Technical health	11	10.0	7	6.4	4	3.6	
	Bachelors	0	0.0	0	0.0	18	16.4	
Years of experience	1-10	4	3.6	13	11.8	14	12.7	<b>0.032*</b>
	11-20	7	6.4	2	1.8	15	13.6	
	21-30	10	9.1	3	2.7	28	25.5	
	More than 30 y	12	12.7	1	0.9	1	0.9	
Area of residence	Rural	18	16.4	2	1.8	4	3.6	0.457
	Urban	15	13.6	17	15.5	54	49.1	

Chi-square test

\*Statistically Significant ( $p < 0.05$ )**Table (3): Relation between total attitude and demographic data of the study sample regarding Covid19 at Assiut city**

Total attitude		Negative		Positive		P
		N.(64)	(58%)	N. (46)	(42%)	
Age groups	<20	1	0.9	0	0.0	<b>0.001*</b>
	20<30	16	14.5	15	13.6	
	30<40	12	10.9	15	13.6	
	40<50	27	24.5	9	8.2	
	50 and more	8	7.3	4	3.6.8	
Sex	Male	5	4.5	5	4.5	<b>0.121</b>
	Female	59	53.6	41	37.3	
Level of education	Intermediate school	51	46.4	19	17.3	<b>0.182</b>
	Technical health	8	7.3	11	10.0	
	Bachelors	5	4.5	16	14.5	
Years of experience	1-10	20	18.2	11	10.0	<b>0.352</b>
	11-20	17	15.4	7	6.4	
	21-30	25	22.7	16	14.5	
	More than 30 y	2	1.8	12	10.9	
Area of residence	Rural	6	5.4	18	16.4	<b>0.457</b>
	Urban	58	52.7	28	25.5	

Chi-square test

\*Statistically Significant ( $p < 0.05$ )

**Table (4): Relation between total practice and demographic data of the study sample regarding Covid19 at Assiut city**

Total Practice		Satisfactory		Unsatisfactory		P
		N.(39)	(34%)	N.(71)	(66%)	
Age groups	<20	0	0.0	1	0.9	<b>0.001*</b>
	20<30	10	9.1	21	19.1	
	30<40	10	9.1	17	15.4	
	40<50	9	8.2	30	27.3	
	50 and more	4	3.6	8	7.3	
Sex	Male	5	4.5	5	4.5	<b>0.121</b>
	Female	34	3.9	66	60	
Level of education	Intermediate school	12	10.9	58	52.7	<b>0.182</b>
	Technical health	11	10.0	8	7.3	
	Bachelors	16	14.5	5	4.5	
Years of experience	1-10	4	3.6	27	24.5	<b>0.032*</b>
	11-20	7	6.4	17	15.4	
	21-30	10	9.1	31	28.2	
	More than 30 y	12	10.9	2	1.8	
Area of residence	Rural	18	16.4	6	5.4	<b>0.457</b>
	Urban	15	13.6	71	64.5	

Chi-square test

\*Statistically Significant ( $p < 0.05$ )

**Table (5): Correlation between studied sample selective sociodemographic characteristics with total knowledge, attitude, practices scores (n. =110).**

Demographic data		Knowledge	Attitude	Practice
Age	R	0.267	0.049	0.252
	P.	<b>0.025*</b>	<b>0.684</b>	<b>0.035*</b>
Level of Education	R	0.131	0.124	0.165
	P.	<b>0.279</b>	<b>0.304</b>	<b>0.173</b>
Years of experience	R	0.257	0.252	0.260
	P.	<b>0.032*</b>	<b>0.035*</b>	<b>0.030*</b>

**Table (6): Correlation between total knowledge, attitude, practice scores among studied sample (n. =110)**

Items		Knowledge	Attitude	Practice
Knowledge	R			
	P.			
Attitude	R	0.628		
	P.	<b>0.0001*</b>		
Practice	R	0.264	0.346	
	P.	<b>0.027*</b>	<b>0.003*</b>	

\*Correlation is significant at the 0.05 level

**Table (1):** Reveals that studied nurses aged 40 to <50 years old were 35.5%, were females 90.9%, staff nurse 85.5%, intermediate school education 61.8%, years of experience 21-30 years 37.3, were from urban areas 76.4 and household 3-5 persons were 40.0%.

**Figure (1):** Shows that 53% of nurses scored poorly on COVID19 knowledge, while 17% had fair score and only 30 % of them obtained a high knowledge score in relation to COVID-19.

**Figure (2):** Shows that 58% were adapt positive attitude while 42 % of nurses adapt negative attitude regarding COVID19.

**Figure (3):** Illustrate that 34% of nurses had satisfactory practices and 66% had unsatisfactory practices of protective measures of COVID19.

**Table (2):** Reports the total score of knowledge about COVID-19 varied statistically significantly depending on age, sex, and years of experience, P values = 0.001,

0.001, and 0.032 respectively. There was not statistically significant difference between Level of education and the total score of knowledge, P values = 0.131.

**Table (3):** Reveals that there was statistically significant difference between the nurse' age, P-values = 0.001. There was not statistically significant difference between sex, Level of education, years of experience and area of residence with total score of attitudes toward COVID19, P-values = 0.121, 0.182, 0.352 and 0.457 respectively.

**Table (4):** Represents statistically significant difference existed between the nurse' age, years of experience with the total score of practices of COVID19 with P values= 0.001, 0.032 respectively. There was not statistically significant difference between the nurse' sex, educational level and Area of residence, P values=0.121, 0.182 and 0.457.

**Table (5):** Shows statistically significant difference between the nurse' age and Years of experience with total Knowledge regarding COVID 19 at Assiut City with P values= **0.025** and **0.032** respectively. there was not statistically significant difference between the nurse' Level of Education with total Knowledge toward COVID 19 at Assiut City with P values= **0.279** respectively.

There was statistically significant difference between the nurse' Years of experience and total attitude of the studied nurses score toward COVID 19 at Assiut City with P values= **0.035**. there was not statistically significant difference between the nurse' age and Level of Education with total attitude toward COVID 19 at Assiut City with P values= **0.684** and **0.304** respectively.

There was statistically significant difference between the nurse' age and Years of experience with total practices toward COVID 19 at Assiut City with P values= **0.035** and **0.030** respectively. There was not statistically significant difference between the nurse' Level of Education with total practices toward COVID 19 at Assiut City with P values= **0.173** respectively.

**Table (6):** Demonstrates a moderately positive correlation ( $r = 0.628$ , P value  $< 0.0001$ ) between the studied sample's knowledge scores and attitude, fair positive correlation between knowledge scores of the studied sample and their practice scores ( $r = 0.264$ , P value  $< 0.0001$ ), and between attitude and practice scores ( $r = 0.346$ , P value  $< 0.0003$ ).

## Discussion

The COVID-19 pandemic generally causes a great deal of stress for healthcare workers (HCWs), particularly Nurses who are vital to the front lines of treating COVID-19 patients worldwide. Since they are in charge of providing crucial treatment and care management for confirmed, suspected, symptomatic,

or very vulnerable to infection COVID-19 cases, Nurses employed by healthcare institutions are put in grave danger. (Finch, 2020).

Over and above, since the outbreak of COVID-19, as Nurses are an active part of the healthcare system, they have faced difficult situations and problems. Based on that, the current study was carried out to evaluate maternity and child health centers nurses' knowledge, attitude and practices COVID19 at Assiut City. (García- Martín et al., 2020 & Mahmoud Gouda et al., 2022).

This study results reported that the mean age of the studied sample was  $39.22 \pm 10.25$  years, their ages ranged between  $<20$  to  $>50$  and the vast majority of them were Females, staff nurses and had a diploma education level (Intermediate school). Years of experience of the studied sample ranged between  $<10$  to  $>30$  years, more than three-quarters of the studied nurses has children, Urban and more than three-quarters of the household of the studied sample ranged between 3 to 6 persons. From the investigator opinion this may be due to the nature of Assiut governorate where most of people live in rural area. Concerning the total knowledge score of the nurses under investigation, the study's findings revealed that more than half of nurses were scored poorly on the COVID-19 knowledge.

Study result is in line with Elhadi et al., (2020), whose cross-sectional research was done to assess the levels of knowledge and preparedness regarding COVID-19 among the 1572 physicians and nurses employed by 21 Libyan hospitals which found that around three-quarters of the participants possess inadequate knowledge concerning COVID-19.

The present result was in contrast with Kassie et al. (2020) who performed a across-sectional study conducted in Northwest Ethiopia and revealed that almost three-quarters of health care providers had good score of knowledge regarding COVID19.

Also, the present study's result was in contrast with Huynh et al. (2020) who performed In District 2 Hospital in Ho Chi Minh City, China, a cross-sectional study with 327 participants that using a systematic random sample technique to evaluate healthcare personnel' knowledge and attitudes about COVID-19, reported that most of them possessed high score knowledge.

From the investigator opinion, this disagreement could be as a result of the novelty of the virus and several conflicting information about it, disease serosity regarding the pandemic and the depressing news headlines regarding the public health emergency, that prompted the nurses to rapidly seek out information on this illness from a variety of sources in order to protect both patients and themselves.



The results are consistent with **Bhagavathula et al., (2020)** who carried out a study titled: "the knowledge and perceptions of HCWs about COVID-19" on 453 HCWs and It revealed that almost two thirds of them lacked adequate knowledge.

From the investigator opinion, considering that the earlier researches were carried out during the early stages of the pandemic, the discrepancy might have resulted from the timing of the study. Concerning MCH Nurses information sources about the coronavirus, the findings of the present study showed that less than half of the sample under study was informed about the coronavirus through mass media, over 50% of them utilized social media and the internet and only less than one-third from coworkers and family.

The current result is in contrast with **Buertey et al. (2020)** who conducted a quantitative descriptive study on 196 nurses/midwives working in Tamale Central Hospital and the Tamale Teaching Hospital in Ghana titled: " Knowledge, Attitudes and Practices of Nurses in the Tamale Metropolis Towards Coronavirus Prevention " and revealed that Of those involved, more than 75% had their sources of coronavirus information through mass media (television and Radio) primarily followed by social media and the minority rely on information from coworkers.

Moreover, this finding is consistent with, **Jemal et al. (2021)** who carried out multicenter cross-sectional research on 422 Ethiopian health care workers were selected for the assessment of knowledge, attitude, practice and prevention of COVID-19, declared that the majority of them use mass media (television/radio) and social media to learn about COVID-19 and only 25% obtain their information from peers, or coworkers.

From the investigator opinion, the disagreement could be clarified by; social media is the easiest, most available and contain a lot of information as well as the worldwide focus of health ministries and social media on enlightening the public and healthcare workers via the internet, awareness campaigns, TV, radio, newspapers, magazines, advertisements, and brochures.

According to the results of the current study, nearly three-fifths of the studied Nurses had positive attitude toward COVID19. However, there remains an intrinsic fear that the virus may infected them and in turn pass it to their family members, particularly their parents. That fear is probably caused by the MCH nurses' ignorance of relevant and up-to-date preventative and isolation techniques.

This outcome was consistent with **Fan et al., (2021)** who carried out a study evaluating the knowledge, attitude and practice of personal protection among various worker groups returning to work in the wake

of the COVID-19 pandemic in China and showed that the clear majority of the recipients had positive attitude toward COVID 19.

Regarding the total score of practices using early prevention and protective measures, the recent study showed that among the nurses surveyed, over two thirds hadn't satisfactory practices toward covid-19.

This finding was supported by **Kassie et al. (2020)** who examined 634 HCWs from hospitals and health centers in Northwest Ethiopia., to evaluate their adherence to the COVID-19 preventative practice recommendations and found almost two thirds of the sample under study did not follow the COVID-19 preventative practice recommendations.

Also, this finding agrees with **Etafa et al. (2021)** in Western Ethiopia who studied 404 health care workers to assess their compliance and potential factors against COVID-19 in public hospitals and reported that about three-quarters had not followed COVID-19 safety precautions.

This agreement might result from inappropriate work environment, heavy workload, insufficient PPE (personal protective equipment) supplying, lack of institutional support; also, insufficient knowledge regarding the significance and correct Use of PPEs to prevent and restrict the spread of COVID-19.

Conversely, this result disagreed with **Amanya et al. (2021)** study, which assessing healthcare professionals' knowledge of and obedience to Covid-19 infection prevention and control protocols in regional referral hospitals in northern Uganda and reported that over two-thirds of them had high adherence to Covid-19 IPC measures.

Furthermore, **Tadesse DB., et al (2020)** performed a cross-sectional study to ascertain nurses' knowledge, attitudes, practices, and psychological reactions to the COVID-19 the northern Ethiopian COVID-19 epidemic in northern Ethiopia hospitals, it was discovered that almost two-thirds of them had effective Infection control practices.

Additionally, this finding in contrast with **Mbachu et al. (2020)** who performed an online study In Gina, a state in southeast Nigeria, to ascertain healthcare personnel' knowledge, attitudes, practices, and effects related to COVID-19 infection and reported that the majority followed appropriate COVID-19 preventative measures.

From the investigator opinion, this disagreement could be due to the variations in the countries' economic situations, which secure adequate Ability and supply of protective equipment in the healthcare system. Also, Uganda, Ethiopia, and Nigeria had more training programs for healthcare personnel, especially nurses. Besides, this might be because the variation in data gathering techniques as Self-reported

research is predicted to demonstrate higher adherence to infection control and preventive measures.

Concerning the relation between the study nurses' Demographic data and total knowledge score, this study finding reported a high statistically significant relation between total knowledge score with age and years of experience.

This finding was supported by **Parajuli et al. (2020)** study conducted on HCWs at Seti Zonal Hospital in Dhangadhi, Nepal, to evaluate their knowledge and attitude of COVID-19, and found that there was high statistically significant relation between total knowledge with age and years of experience when  $p$  value  $> 0.001$ . This agreement might be explained by as one ages and gains experience, their degree of knowledge similarly increases.

On investigating the correlation between total knowledge score and level of education of the nurses under study, there is no statistically significant correlation between the total knowledge score and the level of education among the nurses under investigation.

This outcome was consistent with the research conducted by **Kamineni et al. (2020)** about "Knowledge of COVID-19 among nursing and Allied health care professionals working in tertiary care hospital" in Chennai, India and discovered no significant relation between total knowledge score and level of education when  $p$  value = 0.355.

Concerning the relation between nurses' Demographic data and total practice score, the current study results revealed that high statistically significant relation between total compliance with age, and years of experience.

This study finding in agreement with **Said et al., (2021)**, who conducted a COVID-19 preventive program for nurses using Quasi- experimental study, a convenient sample of ninety nurses employed in the Benha University Hospital's obstetrics and gynecology department and reported that a high significant relation between practice and demographics data (education, experience, and age) pre- and post-program when  $p$ -value  $< 0.001$ .

This may be explained by the fact that older nurses exhibited better levels of compliance because they had more education and experience, which raised their awareness of the COVID-19 threat and their concern for containing the pandemic through adherence to preventive measures. Additionally, elderly nurses have a higher risk of infection and are more concerned about infecting their family members.

The current finding showed that nearly 58% of the studied nurses adapt positive attitude toward COVID19. This was because the majority of the nurses were afraid from the epidemic danger on them

and their families. This result was similar to **Chen et al, (2021)** about " The Effect of Fear of the COVID-19 on Depression Among Chinese Outbound Students Studying Online in China Amid the COVID-19 Pandemic Period: The Role of Resilience and Social Support " who confirmed that most of the sample under study had positive attitude.

Also, study finding was confirmed by **Fan et al., (2021)** who conducted research in China to investigate personal safety behaviors, attitudes, and knowledge among different worker types returning to work during the pandemic, and discovered that most of the sample had adapted positively to the virus.

The present study result reported that the majority of the studied MCH nurse' had unsatisfactory practices regarding protective measures against COVID19. Moreover, the present study finding disagreed with **Mbachu et al. (2020)** who carried out an online, cross-sectional study on HCWs in Gina South-Eastern Nigerian state to assess knowledge, attitude, practices, and impact of COVID-19 infection and showed that most of them followed effective COVID-19 preventative measures.

Also ,This study result was compliance with **(Mahmoud Gouda et al., 2022)** who conducted a study in El-Fayoum governorate investigating 76 maternity staff nurses were chosen from three government hospitals' maternal-child health centers and obstetrics and gynecology departments and reported that Around two-thirds of them hadn't applying preventive precautions toward Covid-19.

The unsatisfactory practice of the proposed studied nurse' was brought on by inadequate health intervention programs that promote preventive measures to reduce infection, an ignorance about good COVID-19 practices among the nurses under study, and a lack of clear instructions on the majority of protective equipment packaging, such as face masks, regarding how to use the equipment.

### Conclusion:

The study concluded that the majority of the studied nurses had poor score of knowledge and positive attitude toward COVID19, while the most of them had unsatisfactory practices of COVID19 preventive measures.

There was statistically significant difference between the nurse' Years of experience and total Knowledge, attitude and practice of the studied nurses score toward COVID 19 at Assiut City. There was not statistically significant difference between the nurse' level of education with total Knowledge, attitude and practice toward COVID 19 at Assiut City.

There was a moderately positive correlation between the studied sample's knowledge scores and attitude, fair positive correlation between knowledge scores of

the studied sample and their practice scores and between attitude and practice scores.

### Recommendations:

1. Coronavirus disease 2019 in-services training programs should be the focus on MCH Nurses about coronavirus disease 2019.
2. Develop and implement an educative program with providing resources that will inspire MCH staff nurses to take preventative actions during the COVID-19 epidemic.
3. For the study results to be generally applicable, more research with a bigger sample size is necessary.

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