

Nursing Staff' Knowledge, Attitudes, and Selected Psychological Response Regarding COVID-19 Outbreak

Nesma Hamdy Ahmed Hassen¹, Safaa Mohamed Abd Elrhman², Mona Thabet³

1. B.Sc. Nursing,
2. Professor of Nursing Administration, Faculty of Nursing – Minia University,
3. Assistant Professor of Nursing Administration, Faculty of Nursing – Minia University,

Abstract:

Background: COVID-19 is an ongoing pandemic, for which appropriate infection prevention and control measures need to be adopted. Healthcare workers' adherence to prevention and control measures is affected by their knowledge, attitudes, and their psychological responses towards COVID-19. **Aim of the study:** is to assess nursing staff knowledge, attitude, and psychological response of COVID-19 during COVID-19 outbreak. **Research design:** a descriptive correlational research design. **Setting:** conducted at the Minia Health Insurance Hospital. **Subjects:** all nursing staff at the time of data collection (no=280). **Data collection:** data was collected by using four tools. **Results:** the study showed that majority (97.1%) of nursing staff had satisfied total knowledge about COVID-19; the majority (87.5%) of nursing staff had a favorable attitude toward COVID-19; more than half that (53.6%) of nursing staff had a moderate level of fear from COVID-19 and finally, more than half (51.8%) of nursing staff had a moderate level of total anxiety from COVID-19. **Conclusion:** it was observed that there is a weak positive association between total nursing staff knowledge about COVID-19 and their total attitude toward COVID-19. While, there is a weak negative association between nursing staff knowledge about COVID-19 and their total fear score; and there is a negative but not significant association between knowledge about COVID-19 and their total anxiety score. **Recommendation:** All nurses should have access to personal protective equipment at all times, especially those working in isolation hospitals, and there should be training sessions provided on COVID-19 protection.

Key words: Nursing Staff, Knowledge, Attitudes, Psychological Response regarding COVID-19 Outbreak

Introduction:

The SARS-CoV-2 virus, which causes COVID-19, was initially discovered in China's Hubei province's city of Wuhan in December 2019 (Huang, et al., 2020). The 2019 new Corona virus (2019-nCoV) respiratory disease was the original name for COVID-19 before the World Health Organization (WHO) changed it to its current designation in February 2020 (WHO, 2020).

The World Health Organization (WHO) labelled the COVID-19 outbreak a pandemic on March 11, 2020. As of June 22, 2020, there has been extra than 8.5 million of the assured infections cases from this ongoing epidemic, along with extra than 0.47 million fatalities (Adhanom, 2020). Additionally, the COVID-19 infection fatality ratio (IFR), a figure that calculates the proportion of fatalities among all infected people, has been found to range from 0.5% to 1% (Bashir and others, 2021).

In Egypt it has been proclaimed its first case of COVID-19 On Feb 14, then the preventive measures has been asserted by Egyptian government. On March 25, Egypt has to start a limited lockdown measures, in which there was a nasopharyngeal swabs from patients who have symptoms of COVID-19 or contacts with the confirmed cases drew in the previous two weeks. At the airport, a clinical evaluation and body temperature were done as screening procedures. (Lai, et al., 2020).

The clinical history of the new coronavirus COVID-19 has not yet been fully documented (Murthy, et al., 2020). Although the spread through asymptomatic individuals has been documented, COVID-19 is most contagious right after the start of symptoms (Bi, et al., 2020). Within two to fourteen days, fever, exhaustion, a dry cough, myalgia, and dyspnea are the most typical symptoms (Wang, et al. 2020).

There is a five-day incubation period, and frequent symptoms include fever, coughing, and shortness of breath (Singhal, 2020). The only known effective antiviral treatments for COVID-19 are supportive therapy and symptomatic management. It is crucial to educate and properly communicate with people about the preventive actions (such as hand washing, covering one's mouth when coughing or sneezing, and keeping social distance and isolation), in order to empower them (Yousefifard, et al., 2020).

People naturally started to worry about the COVID-19 due to the exceptionally high infection rate and reasonably significant mortality. There has been a reported dread of interacting with people who may be COVID-19 infected (Ahorsu, 2022). Unfortunately, dread could actually make the disease's effects worse. Because of the COVID-19's pandemic character and global spread of dread, stigma has occasionally resulted (Guan et al. 2020).

Thus, dread and psychological disturbance are two characteristics of infectious disease that set it apart from other disorders. The psychological reaction or anxiety is directly related to the medium, transmission rate, and morbidity and mortality of the disease (rapidly and invisibly). Additional psychosocial difficulties that result from this include stigmatization, prejudice, and loss. When responding to COVID-19, people may not be able to think clearly and sensibly due to their high levels of fear (Baud et al. 2020).

Social isolation, wearing a face mask in public, ventilation and air filtration, hand washing, covering one's mouth when sneezing or coughing, sanitizing surfaces, and monitoring and self-isolation for persons exposed or exhibiting symptoms are all suggested preventive methods. In response, governments around the world have implemented site closures, worker hazard precautions, and travel

restrictions. Additionally, several locations have attempted to enhance testing capacity and identify affected individuals' contacts (Huang, et al., 2020b).

Because they provide direct patient care and lower the chance of contracting the infectious disease, nurses are crucial in the response to such situations. For individual nurses, society, and the nursing profession, the experience of providing nursing care in this setting has the potential to have substantial short- and long-term effects (Fernandez, et al., 2020).

A positive outlook and acceptable workplace behavior are supported by deep knowledge, which reduces the risk of infection. Nurses' knowledge and attitudes concerning COVID-19 have an impact on how well they adhere to control measures (Limbu, et al., 2020). Therefore, it is crucial to understand the knowledge of the nurses and determine the factors that affect their attitudes and responses to have adequate practices and protection.

Significance of the study:

A unique segment of the population, nurses have greater autonomy and urgent demands to live independently. They also have an impact on and are affected by the community. Additionally, nurses are among the staff members who care for COVID-19 patients the most actively. Their attitudes and actions might significantly affect how quickly a pandemic spreads (Peng et al., 2020). Therefore, it is important to evaluate their understanding of the COVID-19 pandemic.

Over 12,000 fatalities and approximately 1.9 million new cases were reported globally in the week of January 16 to 22, 2023. Over 11 million new cases and over 55 000 new deaths were reported globally in the past 28 days (26 December 2022 to 22 January 2023), representing a drop of 25% and an increase of 13%, respectively, from the prior 28 days. Globally, approximately 6.7 million fatalities and over 664 million confirmed cases have been documented as of 22 January 2023 (WHO, 2023).

Moreover, in Egypt, according to reports made to the WHO, there were 515,609 confirmed cases of COVID-19 between 3 January 2020 and 27 January 2023, along with 24,805 fatalities. A total of 101,357,078 vaccination doses have been given as of 21 January 2023 (WHO, 2023).

Therefore, understanding nurses' knowledge, attitudes, and psychological response help to predict the outcomes of planned behavior. Thus, this study aimed to investigate knowledge, attitudes, and psychological response towards COVID-19 among nurses. If nurses' concerning the virus and the factors that affect their attitudes and behaviors can be determined promptly in the early stages of the epidemic, then this information can inform relevant training and policies during the outbreak and guide nurses in prioritizing protection and avoiding occupational exposure.

Aim of the study

The aim of the current study is to assess nursing staff knowledge, attitude, and psychological response of COVID-19 during COVID-19 outbreak

Research questions

1. What is the level of knowledge, attitude, and selected psychological responses regarding COVID-19 outbreak among nursing staff?

2. What is the relationship between knowledge, attitude, and selected psychological responses regarding COVID-19 outbreak among nursing staff?

Subject and Methods

Research design

A descriptive correlational research design was used to achieve the aim of current Study.

Setting

The study was conducted at the Minia Health Insurance Hospital.

Subjects

The study subjects included all nursing staff of Minia Health Insurance Hospital at the time of data collection, the total number of subjects were (280).

Data collection tools

Data was collected by using four tools as following

Tool (I): Self- Administered questionnaire: It will be included two parts:

Part 1: socio demographic data: It used to collect data about nursing staff and encompass item such as age, gender, last certificate, position, residence, marital status, and department.

Part (2-A): it included three questions related to nurses' source of knowledge, the previous infection with COVID-19, and how many times infected with COVID-19

Part (2-B): Knowledge about COVID-19 Outbreak: This part was developed by researcher based on the work of Begum, (2020) and Tadesse, et al., (2020) to assess nurses' knowledge about COVID-19 outbreak. It consisted 33 questions, and divided into four dimensions as follows: knowledge about nature of covid-19 virus, knowledge about symptoms of covid-19 virus, knowledge about methods of transmission and risk factor of COVID-19, and knowledge about diagnosis and treatment of COVID-19.

Scoring system: each question was measured by 2 point scale ranged as: (correct =1 and incorrect =0). The scoring system was divided into two levels as follows (Unsatisfied knowledge about COVID-19 was < 60% and Satisfied knowledge about COVID-19 \geq 60%).

Tool (II): Attitudes about COVID-19 Outbreak

This tool was developed by researcher based on the work of Begum, (2020) and Tadesse, et al., (2020) to assess nurses' attitude about COVID-19 outbreak. It consisted 18 questions. Each question was measured by 5 points likert scale ranged as (Strongly Disagree=1, Disagree=2, Neutral=3, Agree=4, and Strongly Agree= 5). The scoring system was divided into (Favorable attitude \geq 60% and Unfavorable attitude < 60%).

Tool (III): Fear from COVID-19 Outbreak

This tool was developed by researcher based on the work of Ahorsu et al., (2020) and Tadesse, et al., (2020) to assess nurses' fear from COVID-19 outbreak. It consisted 16 questions. Each question was measured by 5 point likert scale ranged as (Never =1, rarely =2, sometimes =3, often =4, and always=5). The scoring system was divided into (Mild level < 50%, Moderate level \geq 50% to \geq 75%, and Sever level < 75%).

Tool (IV): Anxiety during COVID-19 Outbreak

This tool was developed by researcher based on the work of **Maheshwari et al., (2020) and Tadesse, et al., (2020)** to examine nurses' anxiety during COVID-19 outbreak. It consisted 18 questions. Each question was measured by 5 point likert scale ranged (Never =1, rarely =2, sometimes =3, often =4, and always=5).The scoring system was divided into (normal level from 18 to 36, mild level from 37 to 54, moderate level from 55 to 72, and sever level from 73 to 90).

Validity and Reliability of Tools:

Validity: The tools were tested for the content validity by a jury of 5 experts' in the field of Nursing Administration, and minor modifications was done.

Reliability: The tools were tested for internal reliability by using Cronbach' alpha test and it was (0.810) for tool (I), (0.896) for tool (II), (0.876) for tool (III) and (0.804) for tool (IV).

Pilot Study:

A pilot study was carried out before starting data collection on 10% of nursing staff (28 nursing staff) from Minia Health Insurance hospital. The aim of this pilot study was to test the clarity, comprehensiveness, accessibility, and applicability of the tools and to estimate the appropriate time require filling the questionnaire and it was about 20 to 30 minutes for the tools. The results of pilot study was excluded from the study subjects.

Results

Table (1): Percentage distribution of nursing staff socio demographic data at Health Insurance Hospital (no=280).

Socio demographic data	Nursing Staff (no.=280)	
	no.	%
Age		
• 20-<30 years	200	71.4
• 30-<39 years	44	15.7
• 40 -<49years	28	10
• >50	8	2.9
Mean ± SD	29.3±7.79	
Marital statues		
• Single	94	33.6
• Married	171	61.1
• Divorce	8	2.8
• Widowed	7	2.5
Last certificate		
• Diploma	67	23.9
• Technical	172	61.5
• Bachelor	41	14.6
Gender		
• Male	56	20%
• Female	224	80%
Residence		
• Urban	172	61.40%
• Rural	108	38.60%

Table (1) presents that there are (71.4%) of staff nurses aged between 20 - < 30 with mean age 29.3 ± 7.79 years; and there are (61.1%) of them married. Regarding last certificate, there are (61.5%) of nursing staff have Nursing Technician degree. Concerning the gender, there are (80%) of the nursing staff females and (20. %) of them are males. As regards to residence, there are (61.4%) of nursing staff living in urban area and (38.6%) of them living in rural area

Table (2): Percentage distribution of nursing staff's department at Health Insurance Hospital (no=280).

Department	Nursing Staff (no.=280)	
	no.	%
• Emergency (ER)	18	6.4
• Emergency Triage Area(COVID- 19Area)	13	4.6
• Intensive Care Unit (ICU, COVID- 19)	22	7.9
• Intensive Care Unit (ICU)	12	4.3
• Operating Rooms (OR)	38	13.7

Ethical Consideration:

An official letter was granted from the Research Ethics Committee of the Faculty of Nursing, Minia University. Approval to conduct the study was obtained from Dean of the Faculty of Nursing, Minia University. A permission and consent was obtained from director of Minia Health Insurance Hospital, and nursing director of Minia Health Insurance Hospital.

Before the conduction of the pilot study as well as the actual study, oral consent was obtained from the participants that are willing to participate in the study, after explaining the nature and purpose of the study. Study subject has the right to refuse to participate or withdraw from the study without any rational any time.

Study subject privacy was considered during collection of data. Participants 91as assured that all their data are highly confidential; anonymity was also assured through assigning a number for each nurse instead of names to protect their privacy.

Data collection procedure

An official letter was granted from the dean of faculty of nursing. This letter included a brief explanation of the objectives of the study and introduced to the directors of Minia Health Insurance Hospital. Nurses were interviewed on group basis to explain the nature and purpose of the study. The data were collected during period of 4 months during the year 2022.

Department	Nursing Staff (no.=280)	
	no.	%
• Neonatal Intensive Care Unit (NICU)	14	5.0
• Pediatric	13	4.6
• General Medical (GM)	13	4.6
• General Surgical (GS)	9	3.2
• Oncology	26	9.3
• Orthopedic	10	3.6
• Isolation department for COVID-19 patients	46	16.4
• Obstetric	3	1.1
• Ophthalmologic	6	2.1
• Ear, Nose, Throat (ENT)	5	1.8
• Urology	4	1.4
• Central Sterilization	12	4.3
• Radiology	4	1.4
• Laboratory	2	0.7
• Ambulance car	4	1.4
• Quality and Training team	3	1.1
• Infection Control team	3	1.1

Table (2) shows that there are (16.4%) of the nursing staff work in Isolation department for COVID-19 patients, while only (1.1%) in Obstetric Department, Quality and Training team and Infection Control team.

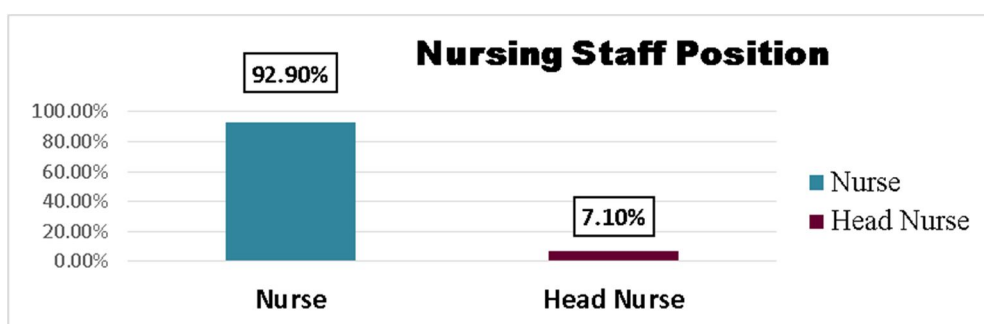


Figure (1): Percentage distribution of nursing staff position at Health Insurance Hospital (no=280)

Figure (1) displays that (92.9%) of nursing staff work as a staff nurse and (7.1%) of nursing staff work as a head nurse

Table (3): Percentage distribution of nursing staff sources of knowledge and their infection with COVID-19 at Health Insurance Hospital (no=280).

Nursing staff sources of knowledge and their infection with COVID-19		Nursing Staff (no.=280)	
Sources of knowledge about COVID-19#			
• Social media		144	51.4
• Television		106	37.9
• Friends		92	32.9
• Family members		57	20.4
• Radio		0	0
• Hospital workshops		30	10.7
• Other (newspaper, religious leaders, traditional healers, any other community member)		29	10.3
Did you infect with COVID-19			
• Yes		115	41.1
• No		165	58.9
How many times do you infected with COVID-19 (no= 115)			
• One time		64	55.7
• Two times		38	33
• Three times		11	9.5
• Four times		1	0.9
• Seven times		1	0.9

More than one response

Table (3) shows that (51.4%) of nursing staff responses was for “social media” as the source of knowledge about COVID-19. Also, it was noted that (58.9%) of nursing staff do not infected with COVID-1 and (41.1%) infected with COVID-19; in addition (55.7%) of the infected nurses are infected for only one time.

Table (4): Percentage distribution of nursing knowledge about COVID-19 dimensions at Health Insurance Hospital (no=280).

Knowledge about COVID-19 dimensions	Nursing Staff (no.=280)			
	Satisfied knowledge		Unsatisfied knowledge	
	No	%	No	%
• Nature	265	94.60	15	5.40
• Symptom	220	78.60	60	21.40
• Methods of transmission and risk factor	246	87.90	34	12.10
• Diagnosis and treatment	269	96%	11	4%

Table (4) displays that majority of nursing staff have satisfied level regarding knowledge about nature of covid-19 virus, knowledge about symptoms of covid-19 virus, knowledge about methods of transmission and risk factor of COVID-19, and knowledge about diagnosis and treatment of COVID-19 (94.6%, 78.6%, 87.9%, and 96% respectively).

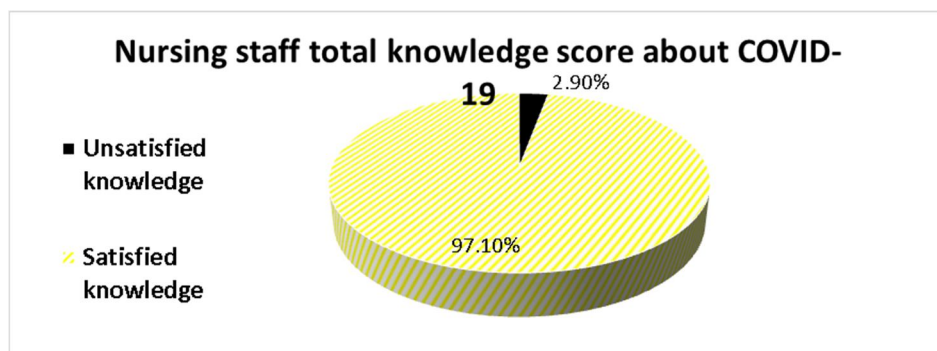


Figure (2): Percentage distribution of nursing staff total knowledge about COVID-19 at Health Insurance Hospital (no=280)

Figure (2) shows that majority (97.1%) of nursing staff have satisfied total knowledge about COVID-19 and (2.9%) of nursing staff have unsatisfied Knowledge about total knowledge about COVID-19.

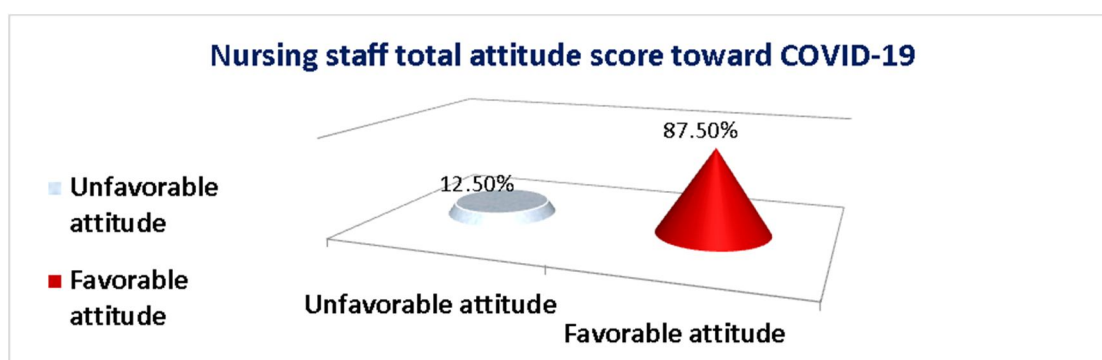


Figure (3): Percentage distribution of nursing staff total attitude toward COVID-19 at Health Insurance Hospital (no=280)

Figure (3) displays that (87.5%) of nursing staff have a favorable attitude toward COVID-19 and (12.5%) of nursing staff have an unfavorable attitude toward COVID-19.

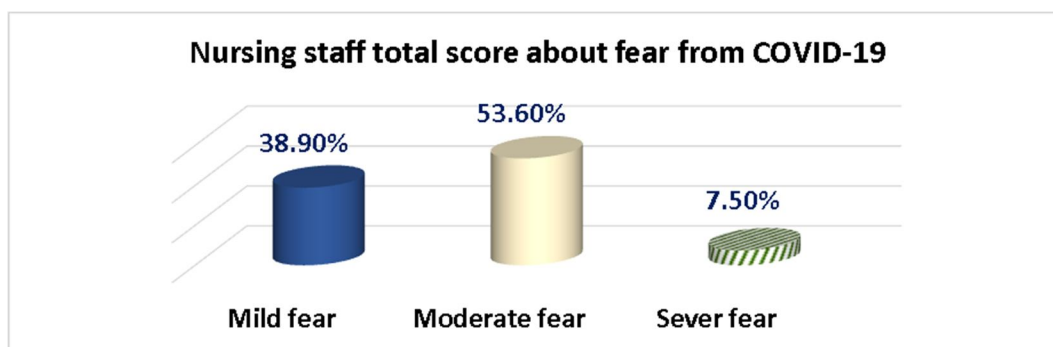


Figure (4): Percentage distribution of nursing staff total fear from COVID-19 at Health Insurance Hospital (no=280)

Figure (4) reveals that (53.6%) of nursing staff have a moderate level of fear from COVID-19 and (38.9%) of them have a mild level of fear from COVID-19; while only (7.5%) of them have a sever level of fear from COVID-19.

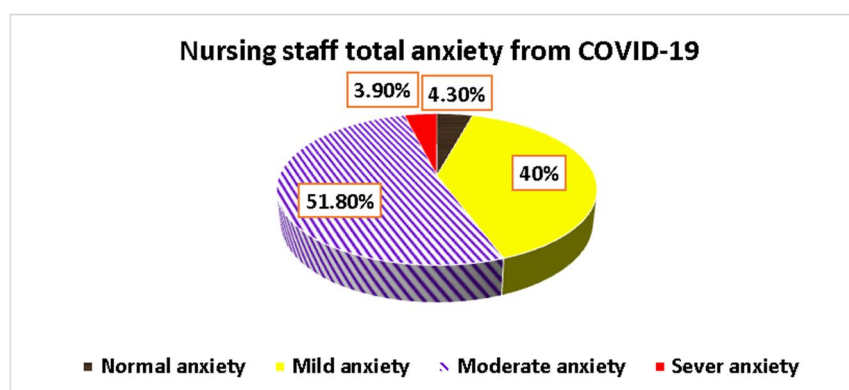


Figure (5): Percentage distribution nursing staff total anxiety from COVID-19 at Health Insurance Hospital (no=280)

Figure (5) displays that (51.8%) of nursing staff have a moderate level of total anxiety from COVID-19, and (40%) have a mild level of total anxiety from COVID-19. While only (3.9%) of nursing staff have a sever level of total anxiety from COVID-19.

Table (5): Correlation between study variable among nursing staff at Health Insurance Hospital (no=280)

Variable	Knowledge		Attitude		Fear		Anxiety	
	r	P	r	P	r	P	r	P
Knowledge	-	-	0.445**	0.000	0.218-**	0.000	0.116-	0.054
Attitude	0.445**	0.000	-	-	0.329-**	0.000	0.043-	0.473
Fear	0.218-**	0.000	0.329-**	0.000	-	-	0.343**	0.000
Anxiety	0.116-	0.054	0.043-	0.473	0.343**	0.000	-	-

**Correlation is significant at the 0.01 level (2-tailed). * p≤0.05 (significant) **p≤0.05 (highly significant),PCC: P – value based on Pearson correlation coefficient

Table (5) displays that there is a weak positive association between total nursing staff knowledge about COVID-19 and their total attitude toward COVID-19, (r=0.445, P< 0.000). While, there is a weak negative association between nursing staff knowledge about COVID-19 and their total fear score (r= -0.218, p= 0.000); and there is a negative but not significant association between nursing staff knowledge about COVID-19 and their total anxiety score (r= -0.116, p= 0.054).

The table also shows that, there is a strong negative association between nursing staff attitude toward COVID-19 and their total fear score (r= -0.329, p= 0.000); and there is a negative but not significant association between nursing staff attitude toward COVID-19 and their total anxiety score (r= -0.043, p= 0.473). In addition, there is a weak positive association nursing staff fear about COVID-19 and their total anxiety score (r= 0.343, p= 0.000).

Discussion

Presence of COVID-19 symptoms was the most cited reason for testing for all participants, regardless of history of COVID-19 and seasonal influenza vaccine receipt, followed by contact with an individual known or suspected to have been infected with SARS-CoV-2, either in the household or in other settings(Andrejko, et al., 2022).

Moreover, the stability of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) on textiles was not well understood at the start of the coronavirus disease 2019 (COVID-19) pandemic, therefore the infection control risk associated with contaminated healthcare worker was unclear (Owen, et al., 2021). While personal protective equipment (PPE) is used during patient care to prevent uniforms from becoming contaminated, there is some evidence that self-contamination can occur during doffing of personal protective equipment (PPE) which could be a potential contamination route for healthcare worker during the COVID-19 pandemic(Owen, et al., 2022).

Thus health care workers knowledge and attitudes toward COVID-19 is crucial to prevent the spread of infection to others or to themselves. Also, health care workers psychological health status as feeling with fear, anxiety, safe, pressures, or risk affect their attitude and knowledge about COVID- 19 (Bennett, et al., 2020).

Regarding socio demographic data, the current study presented that there were less than three quarters of nursing staff aged between 20 - < 30 with mean age 29.3 ± 7.79 years; and there were less than two thirds of them married. Regarding last certificate, there were less than two thirds of nursing staff had a Nursing Technician degree. Concerning the gender, the majority of the nursing staff females and one fifth of them were males. As regards to residence, the highest percentage of nursing staff living in urban area and more than one third of them living in rural area.

Speaking about department, it was noted that the highest percentage of the nursing staff work in COVID-19 patients, while lowest percentage work in Obstetric Department, Quality and Training team and Infection Control team. Regarding the nursing staff position, the results showed that the majority of nursing staff work as a nurse and minority of them work as a head nurse.

Regarding nursing staff knowledge about COVID-19 For the source of COVID-19 knowledge and previous infection with COVID-19,the current study revealed that more than half of nursing staff responses were for “social media”as the source of knowledge about COVID-19. This result indicated that the nursing staff have their knowledge from social media as most of people have, for the first time no one hear or know about COVID-19 virus in hospitals, all people have known it from media, television, or internet.

This result is congruent with Qadah (2020) and Salman, et al. (2020) who indicated that the health care professionals including doctors and nurses use social media as the most source of knowledge about COVID-19. This is in line with O’Leary, et al., (2021) who displayed that to promote greater dissemination, nurses actively encouraged others to post information on social media. Some nursing professionals expressed viewpoints that claimed COVID-19 was a hoax epidemic or portrayed it as being.

Also, this result is supported with Glasdam, et al., (2022), who mentioned that the majority of the eleven research that were considered in their study and carried out by cross-sectional surveys in underdeveloped nations, and neither social media nor nurses were their primary areas of interest. It was noted that social media platforms were utilized by nurses to learn about COVID-19, share information, and provide support for one another by identifying the need for training, adjustments to the way care is provided, and redeployment.

Moreover, the current study showed that more than half of nursing staff did not infected with COVID-19, and more than two fifth infected with COVID-19; in addition more than half of nursing staff who infected with COVID-19 were infected for only one time. This result could be due to the exposure of nurses to patient with COVID-19 so they have high risk to be infected one. Also, the highest percentage of nurses who infected with COVID-19 had only one times due to their use of personal protective equipment as well as the vaccination they received.

This result come in line with Sabetian, et al., (2021) who revealed in their study that there were 5.62% (273 out of 4854 cases) infection among health care workers, with a mean age of 35 years and a dominance of infected cases were among nurses (51.3%).

Furthermore, **Sabetian, et al., (2021)** mentioned in their study that the use of personal protective equipment, as N95 masks, goggles and protective clothing, can safe health care workers from infection with COVID-19; and the use of vaccine can also decrease the rate of infection to be one time only among them.

The current study results displayed that majority of nursing staff have satisfied level regarding all **knowledge dimensions** as nature of COVID-19, symptoms of COVID-19, methods of transmission and risk factor of COVID-19, and diagnosis and treatment of COVID-19.

This result may be due to nurses' awareness with COVID-19 especially that the data collected after approximately two year from the outbreak appearance, thus the knowledge, and information about COVID-19 is increased and spread through the means of communication, media and scientific sites. Nurses have clear information from media and their work in hospital, as they work in Health Insurance Minia Hospital that was one of isolation hospitals in Minia Government. They know well the nature of disease as it is COVID-19 is a virus infection, could be fetal, and highly infected disease. Also, they know the common symptoms of COVID-19, as they know well the main clinical symptoms of COVID-19 virus are loss of smell, loss of test, fever, cough, sore throats, shortness breath, and myalgia/ fatigue.

In addition, nursing staff know well the methods of transmission and risk factor of COVID-19, due to their experiences in hospital and experiences with COVID-19 patients, they know higher risk of COVID-19 infection and how it can transmit to others. Also, nursing staff had satisfied knowledge about how to diagnosis and treat COVID-19 patients due to their work environment with COVID-19 patients. They address the methods of treatment as using antibiotics and antipyretics as th0065 first-line treatment, as well as decrease the risk of infection by having vaccine.

These results come in line with **Khabour, et al., (2020)** who revealed that among the sample, more over half (55%) thought COVID-19 was a naturally occurring virus that causes a serious and potentially fatal disease. Highest percentage (62.9%) did not believe that this illness was triggered by germs or resembled seasonal flu. Weirdly, 45.0% of the studied population believed that the COVID-19 virus was a product of laboratory engineering. The majority of participants (95%) concurred that those who are older or who have chronic conditions like diabetes or heart disease are more likely to get serious COVID-19 infections.

Also, **Khabour, et al., (2020)** said regarding symptoms, that roughly 65.2% of participants believed that seasonal influenza symptoms and COVID-19 symptoms are very comparable. Additionally, the majority (82.7%) thought that only a small percentage of COVID-19 individuals experience symptoms that would be considered severe. Aspects of Jordanians' perceptions of the COVID-19 disease were found to be moderated by factors including age, gender, and education.

Also, these are in line with **Wang et al., (2020a) and Huang et al., (2020a)** who displayed that the responders concurred that the COVID-19 clinical manifestations can range from mild, non-specific symptoms to influenza-like symptoms, with severity ranging from asymptomatic infection to a deadly condition. Though more serious situations could result in various organ damage and respiratory difficulties.

Moreover, **Albahri, et al., (2021)** mentioned that participants' showed concerns about signs, symptoms, and at-risk groups about COVID-19.

However, **Albahri, et al., (2021)** results are inconsistent with the current results regarding COVID-19 knowledge for testing, virus, transmission, and the isolation of contacts with positive cases in which it was agreed by less than two-thirds of the participants correctly.

Regarding nursing staff total score knowledge, the current study showed that majority (97.1%) of nursing staff had satisfied total knowledge about COVID-19 and only about three percent of nursing staff had unsatisfied Knowledge about total knowledge about COVID-19. This could be due to their experiences and their work with COVID-19 patients in isolation hospital.

This is consistent with **Almohammed, et al. (2021)** as in their study about "Knowledge, Attitude, and Practices Associated with COVID-19" mentioned that only two-thirds of participants (67.8%) among healthcare personnel in Saudi Arabian hospitals demonstrated adequate knowledge of COVID-19.

Furthermore, **Albahri, et al., (2021)** added that overall of study participants 57.4% (101/176) had a satisfied overall level of knowledge about COVID-19. Also, this come in line with **Asadi, et al. (2022)** who displayed in their study that the majority of the population under study has a knowledge score of 73.73 out of 100.

Regarding nursing staff attitudes; the current study displayed that the majority of nursing staff had a favorable attitude toward COVID-19 and lowest percentage of nursing staff had an unfavorable attitude toward COVID-19. This result may due the nursing staff good knowledge regarding COVID-19 and how to deal with this virus, as well as they felling of empathy with patients COVID-19 and need to provide all care to patients.

This result is congruent with **Huynh, et al., (2020)** who mentioned that total of 327 eligible healthcare workers had a mean score of attitude 1.86 ± 0.43 (range 1-5). They showed a positive attitude. Also, this is consistent with the results of **Nehara, et al., (2021)** who revealed in their study that the mean attitude scores were 2.42, with an overall correct rate of 60.50%;

While, this is not in line with **Albahri, et al., (2021)** who mentioned that only 58/176 (33.0%) of health care providers reported favorable sufficient positive attitude score toward COVID-19; however, had statistically higher mean scores for attitude compared to physicians, and non-Emiratis compared to Emiratis' HCWs.

Speaking about nursing staff level of fear, it was noted that more than half of nursing staff had a moderate level of fear from COVID-19 and more than one third of them had a mild level of fear from COVID-19; while lowest percent of them had a sever level of fear from COVID-19. This result indicated that nurses had moderate level of fear, and this may be due to their practices of nursing care to COVID-19 patients effectively and their assertiveness to help patients. While they provide all their power to patients but they are persons as other people had fear form the infection with COVID-19 and dead.

This result is in line with **Ahorsu, et al. (2020)** who revealed in their study about the fear of COVID-19 scale that the participants had moderate level of fear toward COVID-19. Also, **Moussa, et al., (2021)** showed in their study that a moderate level of fear of the COVID-19 was indicated by the total mean score for the Fear of COVID-19, which was 19.7

While this result is not in line with **Ahmed and Atia (2020)** who displayed that the highest percentage of participants had low level of fear, one quarter had moderate level and one-quarter of individuals from nurses and the general public reported having a severe level of fear of COVID-19.

Concerning the level of anxiety, the current study displayed that more than half of nursing staff had a moderate level of total anxiety from COVID-19, and forty percent had a mild level of total anxiety from COVID-19; while the lowest percentage of them had a severe level or normal level of total anxiety from COVID-19. This result due to the moderate level of fear toward COVID-19 among nursing staff.

This result is in same line with **Aly et al., (2021)** who studied “perceived stress, anxiety and depression among healthcare workers facing the covid-19 pandemic in Egypt” and discovered that just under half of the individuals had moderate levels of anxiety, slightly less than half had mild levels, and just under one third had severe levels.

Also, this result is consistent with **Ibrahim, et al. (2022)** the highest percentage of participants had moderate level anxiety from COVID-19, about one quarter had mild level and near to one-third of individuals had severe level of anxiety from COVID-19

While this result is not in line with **Ahmed and Atia (2020)** who displayed that the highest percentage of nurses had normal level of anxiety, about one quarter had moderate, and lowest percentage had severe level of anxiety toward COVID-19.

Finally regarding the correlation between study variables; it was observed that there was a weak positive association between total nursing staff knowledge about COVID-19 and their total attitude toward COVID-19. While, there was a weak negative association between nursing staff knowledge about COVID-19 and their total fear score; and there was a negative but not significant association between nursing staff knowledge about COVID-19 and their total anxiety score.

Also, there was a weak negative association between nursing staff attitude toward COVID-19 and their total fear score; and there was a negative but not significant association between nursing staff attitude toward COVID-19 and their total anxiety score. In addition, there was a positive association nursing staff fear about COVID-19 and their total anxiety score.

These results indicated that the nursing staff level of knowledge correlated positively with attitudes, this may be due to the moderate level of knowledge among nursing staff which outcome in moderate level of their attitudes and this is a result of their experiences and work with COVID-19 patients. While it correlated negatively with fear and anxiety as a normal outcome from their knowledge about COVID-19 and its complications and dangerous status.

Almohammed, et al., (2021) who revealed from their study results of the correlation analysis revealed a positive and moderate correlation between the knowledge and attitude scales ($r = .53; p < .001$). Also, **Marthoenis and Maskur (2021)** indicated in their study that there was positive correlation between the knowledge and attitude of health care workers regarding COVID-19.

In addition, this result come in line with **Ahmed and Atia (2020)** who mentioned there were statistically significant positive correlations were found among the fear of COVID-19, depression, anxiety, and stress in both studied groups.

Also, **Ibrahim, et al. (2022)** indicated positive correlation between total score of depression, fear, anxiety and total score of stress toward COVID-19 among studied subjects.

Conclusion:

It can be concluded from current study that majority of nursing staff had satisfied total knowledge about COVID-19 and lowest percentage had unsatisfied Knowledge level. The majority of nursing staff had a favorable attitude toward COVID-19 and lowest percentage had an unfavorable attitude. More than half that of nursing staff had a moderate level of fear from COVID-19 and more than one thirds had a mild level; while lowest percentage had a severe level of fear. Finally, more than half of nursing staff had a moderate level of total anxiety from COVID-19, and forty percent had a mild level, and lowest percentage had a severe or normal level of total anxiety.

Moreover, it was observed that there was a weak positive association between total nursing staff knowledge about COVID-19 and their total attitude toward COVID-19. While, there was a weak negative association between nursing staff knowledge about COVID-19 and their total fear score; and there was a negative but not significant association between nursing staff knowledge about COVID-19 and their total anxiety score.

Recommendation

- All nurses should have access to personal protective equipment at all times, especially those working in isolation hospitals, and there should be training sessions provided on COVID-19 protection.
- Provide opportunities for nurses to discuss the stress they are experiencing, support one another, and make suggestions for workplace adaptations during this pandemic.
- Give nurses the chance to talk about their stress, support one another, and offer proposals for changes to the workplace as a result of the pandemic.

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