

Assessment of Nurses knowledge toward COVID-19 Diseases Prevention and Infection Control

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Abstract

Background: Coronavirus disease 2019, the highly contagious Infectious disease caused by severe acute respiratory syndrome Coronavirus 2, has had a catastrophic effect on the World's demographics resulting in more than 2.9 million deaths Worldwide, emerging as the most consequential global health crisis Since the era of the influenza pandemic of 1918. After the first cases of this predominantly respiratory illness were first reported in Wuhan, Hubei Province, China, in late December 2019.

Objectives: Assessment of nurses' knowledge toward COVID-19 infection control and prevention and Find out the relationship between the nurses' knowledge and their demographic data.

Methodology: A descriptive study that was performed on (162) nurses working in the isolation area at Al-Amal Specialized Hospital for Communicable Diseases in Najaf Al- Ashraf during three shifts. During the period of the study samples were selected through Non-Probability (Convenience Sample). A questionnaire was constructed to assess nurses' knowledge toward control and prevention of (COVID-19) and consisted of: Part I: The Socio-Demographic Characteristics This part is involved the collection of demographic data obtained from the nurses by interview questionnaire forma which is comprised of (5) items including such as (gender, age, work place, No. of training course, and years of service). Part II: Questionnaire related to Nurses Knowledge toward Control and Prevention of COVID-19 Infection. This questionnaire to assessment of nurses' knowledge toward covid-19 diseases prevention and infection control. It was consisted of (17) items

Results: The findings of the present study indicate that the overall knowledge assessment about Prevention and control of COVID-19, it shows that nurses have moderate knowledge. In addition, that there is association between the nurses' knowledge regarding prevention and control of COVID-19 and their demographic data, it shows that there is a non-significant association between the nurses' knowledge regarding Prevention and control of COVID-19 and their demographic data; except with number of Training Courses in which there is significant association.

Conclusions: The study concludes that overall knowledge assessment about Prevention and control of COVID-19, it shows that nurses have moderate knowledge.

Recommendations: The study recommends Nurse in Isolation wards must take the opportunity for continuing their education to maintain knowledge and skills, designating and distributing a booklet to all nurses who work in isolation wards including prevention and control of COVID-

19. And education programs for nurses may motivate their knowledge regarding prevention and control of COVID-19.

Key words: Assessment, Nurses, Knowledge, Prevention, Infection Control, COVID-19.

INTRODUCTION:

Coronavirus disease 2019 (COVID-19), the highly contagious Infectious disease caused by severe acute respiratory syndrome Coronavirus 2 (SARS-CoV-2), has had a catastrophic effect on the World's demographics resulting in more than 2.9 million deaths Worldwide, emerging as the most consequential global health crisis Since the era of the influenza pandemic of 1918. After the first cases of this predominantly respiratory illness were first reported in Wuhan, Hubei Province, China, in late December 2019, SARS-CoV2 rapidly disseminated across the world in a short span of time ⁽¹⁾.

WHO has issued several guidelines and also started online courses and training sessions to raise awareness and preparedness regarding prevention and control of COVID-19 among HCPs. Knowledge survey provides a suitable format to evaluate existing programs and to identify effective strategies for behavior change in society. Currently, there is scarce information regarding the awareness level of HCPs in many countries. In December 2019, a rapidly infectious disease emerged in Wuhan city in China. The disease was caused by a member of the family of coronaviruses, finally named severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) ⁽²⁾.

The first symptoms are commonly recognized as fever, dry cough, tachypnea, And shortness of breath. Although diarrhea was present in about 20–25% of Patients with MERS-CoV or SARS-CoV infection, intestinal symptoms are rarely Seen in patients with COVID-19. In another study, confusion, chest pain, Vomiting, and nausea were also reported as COVID-19 symptoms Other Symptoms include, sore throat, sneezing, nasal congestion, sputum production, Anosmia and dyspepsia, rash on the skin, or discoloration of fingers or toes, and Viral conjunctivitis ⁽³⁾.

COVID-19 is highly contagious, and there has not yet been any vaccine or effective treatment that has received approval. So, the best solution for controlling the pandemic will be the simultaneous application of preventive methods, sensitive diagnostic approaches, and using current available drugs, while still developing novel treatments ⁽⁴⁾.

MATERIALS AND METHODS:

Design of the Study:

Descriptive study design was used in this research to achieve the objectives of this study. The study has been carried out during the period 29th January 2021 to 1st June 2021.

Setting of the Study:

The study was carried out on nurses working at Al-Amal Specialized Hospital for Communicable Diseases in Najaf Al- Ashraf.

Sample of the Study:

A Non-Probability (Convenience Sample) of (162) nurses working in the isolation area at Al-Amal Specialized Hospital for Communicable Diseases in Najaf Al- Ashraf during three shifts.

Study Instrument:

A questionnaire was constructed to assess nurses' knowledge toward control and prevention of (COVID-19) and consisted of: Part I: The Socio-Demographic Characteristics This part is involved the collection of demographic data obtained from the nurses by interview questionnaire forma which is comprised of (5) items including such as (gender, age, work place, No. of training course, and years of service). Part II: Questionnaire related to Nurses Knowledge toward Control and Prevention of COVID-19 Infection

Data Collection:

The data was collected through an electronic and paper questionnaire. It is filled by the nurses throughout self-report and interview methods.

Validity of the Instrument:

The content validity of the study instruments is determined by the panel of (6) experts, who had more than five years' experience in their field to investigate the content of the nursing interventional. Those experts were asked to review the instrument; for content, clarity, relevancy, and adequacy; some items were excluded and others were added after a face-to-face discussion with each expert and after the instrument was considered valid after taking all the comments and recommendations in consideration.

Statistical analysis:

The data were analyze through application of the descriptive and inferential data analysis methods, included:

- Frequency, percentage, and Statistical mean and standard deviation.

- Measures of central tendency: Mean, Mean of scores (MS) And the two points likert scales with two levels of assessment, poor (mean of score less than 1.5), good (mean of score more than 1.5) for Nurse's knowledge about management of fracture.
- Chi-square : to test independency distribution of observed frequencies, and for measuring the association between the studies variables according to its type.

STUDY RESULTS AND FINDINGS:

Table (1) Descriptive statistics (frequency and percentage) for the demographic data of nurses

Demographic data	Sub-groups	Frequency (N=162)	Percentage
Age / years	20-28	122	75.3
	29-37	20	12.3
	38-46	16	9.9
	47-55	4	2.5
Gender	Male	84	51.9
	Female	78	48.1
Work Place	Governmental Hospital	112	69.1
	Private Hospital	1	0.6
	Health Care Center	14	8.6
	Private Clinic	1	0.6
	Other	34	21.0
No. of Training Courses	0-6	138	85.2
	7-13	17	10.5
	14-20	7	4.3
Years of Service	1-10	138	85.2
	11-20	17	10.5
	21-30	7	4.3

A total of 162 nurses were included in the study sample, their demographic data are presented in table (3.1), this table shows that the majority of the study subgroups are: male nurses (51.9%); those with ages ranging between (20-28) years (75.3%); those with (1-10) year of service (85.5%); those working in the governmental hospital (69.1%) and finally those having (0-6) training courses (85.2%).

Table (2) Assessment and mean of scores of nurses' knowledge about Prevention and control of COVID-19

No.	Items	MS	SD	Assessment
1	Clean hands frequently by rubbing them with	2.93	0.84	fair

	an alcohol-based disinfectant, which is sufficient to prevent contamination of hands with the virus			
2	Washing hands with soap and water only for a minute is enough to get rid of the virus,	2.59	1.08	Poor
3	Wear a mask all the time when leaving the house and in the workplace in the hospital or health institution,	3.08	1.02	fair
4	When coughing and sneezing, cover your mouth and nose with a bent elbow or tissue, dispose of the tissue immediately afterwards, and wash your hands	3.49	0.72	fair
5	Avoid touching your eyes, nose and mouth if your hands are not washed,	3.54	0.75	fair
6	Wearing a protective suit and a protective mask when dealing with patients with COVID-19 infection,	3.46	0.82	fair
7	Stay at home if you have symptoms of a fever or a cold, and take leave until you recover,	3.35	0.83	fair
8	The pathogen can be a cause of transmission of infection from one person to another,	2.80	0.83	fair
9	Thermal scanners used to measure body temperature can effectively diagnose COVID-19	1.89	1.07	Poor
10	Spraying the body with 70% alcohol or chlorine can kill COVID-19,	2.26	1.04	Poor
11	Avoiding contact with patients in general, unless necessary, to reduce the spread of infection,	2.94	0.90	fair
12	Refraining from shaking hands and kissing between health care staff reduces the spread of the virus	3.48	0.79	fair
13	The role of the nurse in guiding people and patients and teaching them how to prevent Covid 19 greatly reduces injuries and also reduces complications of the disease	3.33	0.82	fair
14	The nurse has an important role in knowing the foods that raise the body's immunity and thus be resistant to diseases,	3.31	0.78	fair
15	The nurse's supervision of the sterilization and cleaning of devices and equipment after their use by patients has a major role in reducing the spread of infection.,	3.35	0.78	fair
16	The nurses must wear the paws when dealing with each patient and remove them upon completion of the first patient and replace them when dealing with another patient to prevent transmission of infection.,	3.28	0.84	fair
17	Taking the Covid 19 vaccine is the best solution to prevent workers in health	3.06	1.01	fair

	institutions from getting infected, as well as educating people to take the vaccine.			
Overall Assessment of Knowledge		3.07	0.88	Moderate

MS: Mean of Scores; SD: Standard Deviation; Poor: MS = 1-2.33; Moderate: MS =2.34-3.66; Good: MS≥3.67

Table (2) is about the assessment and mean of scores of nurses' knowledge about prevention and control of COVID-19. This table shows that the majority of the nurses have (moderate) knowledge regarding Prevention and control of COVID-19; except for the items (2,9,10) in which the assessment of knowledge is (poor). The overall assessment of knowledge about Prevention and control of COVID-19 is (moderate).

Table (3): Frequency and percentage of nurses' subgroups according to their knowledge assessment about Prevention and control of COVID-19

Nurses' subgroups	Poor	fair	Good
Frequency	8	144	10
Percentage	4.9	88.9	6.2

Table (3) are about percentage of nurses' subgroups according to their overall knowledge assessment about Prevention and control of COVID-19, it shows that about (4.9%) of the nurses have poor knowledge, (88.89 %) of them have moderate knowledge; while (6.2 %) have good knowledge.

Table (4) Association between the overall Assessment of Nurses' knowledge regarding prevention and control of COVID-19 and their demographic data:

Demographic data	Chi Square	df	P value	Sig.
Age / years	2.22	4	0.31	NS
Gender	3.39	2	0.18	NS
Work Place	1.62	4	0.88	NS
No. of Training Courses	14.77	8	0.02	S

Years of Service	1.21	2	0.25	NS
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df= degree of freedom; NS: Non-significant at P value >0.05; S: Significant at P value <0.05; HS: High Significant at P value <0.01

Regarding table (4) is about the association between the overall assessment of nurses' knowledge regarding prevention and control of COVID-19 and their demographic data, it shows that there is a non-significant association ($P > 0.05$) between the overall assessment of nurses' practice regarding Prevention and control of COVID-19 and their demographic data; except with (No. of Training Courses) in which there is significant association ($P < 0.05$).

DISCUSSION:

Part-I: Discussion of the Demographic Characteristics Related to the Nurses' knowledge :

(Table 1) Show that there are (75.3%) among nurses of sample study is within (20 – 28 years). This outcome is reinforced by a study done by Saqlain, et al., (2020) reveals in their studies that the majority of the study subjects age < 30 years old . Also another study was done by Alwani, et al., (2020) finds that the majority of the study sample age between (18-30) years old. In addition, another study was done by Ali, 2019 finds that the majority of the study sample age between (19-27) years old.

Regarding gender, the results reveal, that the most of study sample (51.9 %) are male. This outcome is reinforced by a study done by Saqlain, et al., (2020) and Ejeh et al., (2020) reveals in their studies that the majority of the study subjects are male.

Concerning work place, the study results present that (69.1%) of the sample are governmental hospital. Many previous studies were in agreement with this result they found that the majority of study subjects in work in governmental hospital (Al Sulayyim, et al., 2020).

The present study shows that (85.2%) of nurses were participating in the training sessions concerning prevention and control of COVID-19 and number of training courses (0-6). Alreshidi, et al.,(2020), study finding agree this result through that (95.5%) of the involved nurses trained on safely donning and doffing PPE in the previous year.

Concerning years of experience, the present study has revealed the majority of nurses in study sample were between (1-10) years of experience. This result was supported by a study done by Ejeh et al., (2020) as his results indicated that the higher percentage of study sample

have (6-10) of experience as a nurses. This result agree with another study done by Tadesse, et al., (2020), who pointed that most of the nurses had >5 years of experience.

Part-II: Discussion of the Nurses' Knowledge:

(Table 3) The study results indicate that the most of the nurses' knowledge about prevention and control of COVID-19 is fair. These results agreed with Alwani, *et al.*, (2020) ; Nemati, *et al.*, (2020); Al Sulayyim, *et al.*, (2020) and Giao, *et al.*, (2022) reveals in their studies that most of the nurses' knowledge about prevention and control of COVID-19 is moderate .

Part-III: Discussion the correlation between the level of Nurses' Knowledge and their studied Demographical Characteristics:

(Tables 4) The study results indicate that there is a non- significant relationship between the nurses' knowledge and their demographic data except with their number of training courses at p-value 0.05 .This result has a logical reasons because of the knowledge gained by the nurses in the study is through the training courses .

CONCLUSION:

Based on the study results the study concluded the following:

- 1- It is found that the most of nurses are middle age group within (20-28) years old, most of the nurses were male . It is concludes that the most of the nurses years' of Service (1-10) years. most of the sample have no participating in the sessions training in isolation wards.
- 2- Overall knowledge assessment about Prevention and control of COVID-19, it shows that nurses have moderate knowledge

RECOMMENDATIONS:

Based on the study conclusion, the study recommends the following:

- 1- Nurse in isolation wards must take the opportunity for continuing their education to maintain knowledge and skills.
- 2- Education programs for nurses may motivate their knowledge regarding Control and Prevention of COVID-19 Infection .
- 3- Developing standardized tool for periodic evaluation of the nurse's knowledge and skills in isolation wards.
- 4- Designating and distributing a booklet to all nurses who work in isolation wards including Control and Prevention of COVID-19 Infection .

REFERENCES:

- 1- Cascella, M., Rajnik, M., Aleem, A., Dulebohn, S. C., & Di Napoli, R. (2021). Features, Evaluation, and Treatment of Coronavirus (COVID-19). In StatPearls. StatPearls Publishing.
- 2- Saqlain, M., Munir, M. M., Rehman, S. U., Gulzar, A., Naz, S., Ahmed, Z., Tahir, A. H., & Mashhood, M. (2020). Knowledge, attitude, practice and perceived barriers among healthcare workers regarding COVID-19: a cross-sectional survey from Pakistan. *The Journal of hospital infection*, 105(3), 419–423.
- 3- Srivastava, P., & Gupta, N. (2020). Clinical Manifestations of Corona Virus Disease. *Clinical Synopsis of COVID-19: Evolving and Challenging*, 31–49.
- 4- Lotfi, M., Hamblin, M. R., & Rezaei, N. (2020). COVID-19: Transmission, prevention, and potential therapeutic opportunities. *Clinica chimica acta; international journal of clinical chemistry*, 508, 254–266.
- 5- Alwani, S.; Majeed, M.; Hirwani, M.; Rauf, S.; Saad S.; Shah, H. and Hamirani, F. (2020): Evaluation of Knowledge, Practices, Attitude and Anxiety of Pakistan's Nurses towards COVID-19 during the Current Outbreak in Pakistan, *British medical journal*, 1-26.
- 6- Ali, B. (2019) : Assessment of Nurses' Knowledge Concerning Management of Fractures in Orthopedic Wards, *Indian Journal of Public Health Research & Development*, 10 (6) , 147-151.
- 7- Ejeh, F. ; Saidu, A.; Owoicho, S.; Maurice, N.; Solomon Jauro, S. ; Madukaji, L. and Okon, K. (2020) : Knowledge, attitude, and practice among healthcare workers towards COVID-19 outbreak in Nigeria, *Heliyon*, 6 (11) , 1-10.
- 8- Al Sulayyim, H. ; Al-Noaemi, M. ; Rajab, S.; Dagherri, H.; Al Yami, S.; Al-Rashah, A.; Alsharyah, H.; Al Murdif, S.; Al Salom, M. (2020): An Assessment of Healthcare Workers Knowledge about COVID-19, *Open Journal of Epidemiology*, 10, 220-234.
- 9- Alreshidi, N. ; Haridi, H.; Alaseeri, R.; Garcia, M.; Gaspar, F. and Alrashidi, L. (2020) : Assessing healthcare workers' knowledge, emotions and perceived institutional preparedness about COVID-19 pandemic at Saudi hospitals in the early phase of the pandemic, *Journal of Public Health Research*, 9, 432-439 .
- 10- Tadesse, D. ; Gebrewahd, G. and Demoz, G. (2020) : Knowledge, attitude, practice and psychological response toward COVID-19 among nurses during the COVID-19 outbreak in northern Ethiopia, *New Microbes and New Infections*, 38 (C), 1-6.
- 11- Nemati, M.; Ebrahimi, B. and Nemati, F. (2020) : Assessment of Iranian Nurses' Knowledge and Anxiety Toward COVID-19 During the Current Outbreak in Iran, *Archives of Clinical Infectious Diseases*, 15, 1-6.
- 12- Giao, H. , Han, N.; Khanh, T.; Ngan, V., Tam, V. and Le An, P. (2022) : Knowledge and attitude toward COVID-19 among healthcare workers at District 2 Hospital, Ho Chi Minh City, *Asian Pacific Journal of Tropical Medicine*, 13(6), 260-265.