

Effectiveness of Applying Guidelines of Hemodialysis with COVID-19 on Nurses' Practice

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ABSTRACT

Objectives: The current study aims to determine the extent to which nurses in hemodialysis units need to apply recommendations for hemodialysis with COVID-19, adhere to the standards, and follow the practices.

Methodology: A quasi-experimental design was carried out from August 2, 2022 to April 15, 2023. The study was done on a purposive (non-probability) sample of (40) nursing personnel who were selected from the hemodialysis wards at Al-Hussein Teaching Hospital for delivering health care to Corona virus patients during the hemodialysis period (Al-aml and Al-Hayat hemodialysis center). To meet the study's aims, which included nurses' practice, a checklist was created. A group of specialists and an inter-rater observer determined the validity of the measurement tool's content.

Results: The results of the current study showed that the nurses providing care for patients with the Corona virus during hemodialysis had a low level of practice (80.53%).

Recommendations: The study emphasized the need of following the guidelines and implementing them in all hemodialysis centers to limit the number of diseased people and disease transmission among personnel, patients, and visitors.

Keywords: Applying Guidelines, Hemodialysis, COVID-19, Nurses

INTRODUCTION

Coronavirus is a novel coronavirus (nCoV), also known as the COVID-19 coronavirus infection, that first surfaced in Wuhan, China, in 2019, before spreading to other regions of the world. The family of positive single-stranded RNAs includes this virus¹.

In accordance with a statement made at the time by the foreign ministry, the 30th group of Iraqi students and their families was slated to fly from Wuhan, China, to Baghdad on February 5, 2020. There are currently no known cases of illness among the students, according to the Iraqi embassy in China. They were declared COVID-19-free after a 14-day quarantine, and on February 19, 2020, they were released. Iraq experiencing the COVID-19. Hospital infections occur quickly when a new outbreak starts. Starting on Wednesday, April 8, 2020, the WHO Among HCWs, there have been reported 22,073 COVID-19 infections, according to the WHO daily situation update².

Iraq's first official SARS-CoV-2 infection reports reached Najaf on February 22, 2020. More than 100 confirmed cases have been reported by April in Baghdad, Basra, Sulaymaniyah, Erbil, and Najaf. As of 7 April 2020, 28,414 tests had been performed across the entirety of Iraq (including the Kurdistan Region), with 1202 of them producing positive results³. In 2020, Shaukat, Ali, and Razzak will be evaluated Ten full-text articles were read, underlined, and remembered. Working in a high-risk department, having a family member with the disease,

poor hand hygiene before and after contact with patients, improper use of personal protective equipment, close contact with patients, prolonged daily contact hours, and unprotected exposure are some of the risk factors for COVID-19-related health effects. The majority of HCPs (85%), coughing (70%), and weakness were recorded (70 percent). Long-term PPE use caused cutaneous symptoms and skin deterioration in 97% of patients, with the nasal bridge being the body part most frequently impacted (83%) by this condition⁴.

Microbiologists identified and sequenced a novel coronavirus based on clinical samples. SARS-CoV-2 infections can occur when a person comes into close contact with an infected person who, through coughing, sneezing, or even just breathing, exhales virus-laden aerosols that are contagious to others⁵.

In Iraq, the first confirmed COVID-19 cases were discovered in February 2020. On April 25, 46,135 tests were conducted in Iraq, with 1763 yielding positive results. Despite this, Iraq is making every effort to contain the COVID-19 outbreak by making use of all available resources⁶.

There were 1716 health care workers (HCWs) infected with SARS-CoV-2 in China as of February 11, 2020, and 5 of them had already passed away (a mortality rate of 0.3%).⁵ As of the beginning of March, there had been at least 22 deaths among the 3300 sick HCWs in China, while there had been 13 deaths among the approximately 2600 infected

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HCWs in Italy. According to past Chinese studies, there are 6,7 HCWs who are under more stress from their workload and are caring for patients with life-threatening illnesses. Absence of personal protection equipment (PPE) can lead to risky working circumstances, a sense of uneasiness, and an increased risk of getting sick. Moreover, a sizable percentage of COVID-19 instances are asymptomatic⁷.

The global community is concerned about the COVID-19 coronavirus infection and has noted how it has an impact on a number of areas of life, including the healthcare system, the economy, and human welfare. The World Health Organization (WHO) is working to identify, test for, and treat those who are affected as well as develop medications, antibodies, and treatment regimens in order to control and decrease the effects of this pandemic⁸.

There are currently no recognized viable treatments for this virus. Nonetheless, more than 80 clinical trials have been done to explore coronavirus therapeutics, including those that repurposed or repositioned medicines for COVID-19⁹.

Lockdowns, airport and border closures, and travel bans have all been undertaken at the regional and international levels to halt the spread. COVID-19 incubation can last up to 14 days after exposure (the average is 4-5 days)⁷. The infection has been documented in persons of all ages, including children¹⁰.

The coronavirus illness of 2019 (COVID-19), which started as a lung infection and developed in a small percentage of patients to include numerous organs and may lead to death, is caused by SARS-CoV-2. The global health systems made an effort to stop the spread of the virus in its early stages as the first step in applying public health principles to managing epidemics¹¹.

Nurses have been essential in the prevention and control of epidemics since maintaining one's health is key in the management of illness. For nurses working in these units, caring for patients who are sleeping in isolation rooms offers a considerable challenge. They also experience a great strain as a result of the unique workflow patterns and nursing personnel deficit in isolation units. Setting up work shifts is essential to maximizing the efficacy of the nursing care that is available¹².

METHODOLOGY

To achieve the study's goals, a quasi-experimental research methodology was employed. By securing approval from the Ethical Council for Research at the College of Nursing, University of Baghdad, the ethical consideration of research was fulfilled. Before gathering data and conducting observations, the nurses gave their consent to participate in the study. For administrative and logistical reasons, permission was sought from the Council of the Nursing College/University of Baghdad for this study before receiving approval from the Ministries of Planning and Central Statistics, as well as the Ministry of Health, which included Al-Hussein Teaching Hospital in Al-Muthana City.

This study's sample includes (30) and nurses from the AL-Hussein teaching hospital. The data for this study were gathered using a checklist that was divided into two sections:

- (a) Socio-demographic factors included age, gender, educational level, years of nursing experience, years of experience in dialysis units, years of experience in covid units, and years of experience in other units, as well as a variety of training.
- (b) Nurses practice checklist contain 6domain is adopted from United Kingdom Kidney Association's and national institute for health and

care excellent (NICE). The checklist was arranged into six domains, it was composed of 56 items. The level of assessment, 1-1.33 = poor Practice (P), 1.34-1.66= fair practice (F), 1.67-2.00 = good practice (G). Domains (1) Visitor Access within the Dialysis Facility (12) items, domain (2) Screening area and triage Contain (12) items, domain (3) Universal Masking items: consist of (6) items, domain (4) Cleaning and Disinfection: consist of (9) items, Domain (5) Patient Placement item: consist of (8) items and domain (6) Personal Protective Equipment (PPE): consist of (6) items.

RESULTS

Table 1: Represent the demographical variables nurses' practice related to hemodialysis patients with COVID

Demographic variables	Items	Study group (n=30)	
		F.	%
Age group (Years)	20-30	12	40
	31-40	7	23.3
	41-50	8	26.7
	More than 50	3	10
Gender	Male	13	43.3
	female	17	56.7
Educational levels	High school	8	26.7
	Diploma	9	30
	bachelor	13	43.3
Year of total experiences	1-5	10	33.3
	6-10	6	20
	11-15	3	10
	16-20	7	23.3
	More than 20	4	13.3
Years of experience in dialysis unit	1-5	2	6.7
	6-10	12	40.2
	11-15	4	13.4
	16-20	8	26.3
experience in covid unit	More than 20	4	13.4
	yes	2	6.7
Years of experience in another unit	no	28	93.3
	1-5	27	90
	6-10	0	0
	11-15	2	6.7
	16-20	1	3.3
Number of training	More than 20	0	0
	1-3	16	53.3
	4-6	8	26.7
	7-10	4	13.3
	No training	2	6.7

F: Frequency, %: Percentage.

Table 1 reveals that a high percentage 12 (40%) of participants in age groups (20-30) years. As for gender, more than half 17 (56.7%) of the participants were female. Regarding education level, the table shows that a high percentage (43.3%) is a bachelor.

Concerning to Year of total experience table show that a high percentage (33.3%) was for (1-5) years. Where the highest percentage (40.2%) of the participants their experience in a dialysis unit was for (6-10) years, the study shows most (93.3%) of the participants are years of experience in the COVID unit was no experience, regarding years of experience in other units the study shows that (90%) of participants (15) years of the experience and the study show most numbers (53.3%) of nurses training for (1-3) years.

Table 2: Descriptive analysis of total nursing practice domains in dialysis for the study group at pre, post 1, post 2 and post 3 education at hospitals in hemodialysis center at AL-Muthana governate n= 30 nurses)

	pre	Ass	Post 1	Ass	Post 2	Ass	Post 3	Ass
	M.S ± S.D		M.S ± S.D		M.S ± S.D		M.S ± S.D	
Visitor Access within the Dialysis Facility	1.26±.229	N.P	1.90±.074	A.P	1.91± .070	A.P	1.90 ±.098	A.P
Screening area	1.32±.270	N.P	1.84±.129	A.P	1.91±.097	A.P	1.90±.198	A.P
Universal Masking	1.27±.354	N.P	1.86±.152	A.P	1.85±.197	A.P	1.88±.287	A.P
Patient Placement	1.24±.217	N.P	1.87±.120	A.P	1.94±.107	A.P	1.90±.158	A.P
Cleaning and Disinfection	1.43±.376	I.N	1.88±.103	A.P	1.81±.184	A.P	1.96±.067	A.P
Personal Protective Equipment (PPE)	1.31±.334	N.P	1.90±.136	A.P	1.96±.067	A.P	1.96±.067	A.P

N= number of samples, MS=Mean of score, SD= Standard deviation, Ass=Assessment level 1-1.33 (Poor) P, 1.34-1.66 (Fair) F, 1.67-2 Good (G).

Table 3: Distribution of practice concerning nurses practice domains Pre-& (Post1-2-3) test for study

Nurses practices domains	Test period	Paired t test Statistics				
		Mean	S.D	t test	P.	sig.
Visitor Access within the Dialysis Facility	Pre	1.26	.229	15.215	0.05	.000
	post I	1.90	.074			
	Pre	1.26	.229	-14.607-	0.05	.000
	post II	1.91	.070			
	Pre	1.26	.229	-14.504-	0.05	.000
	post III	1.90	.098			
Patient Placement	Pre	1.24	.112	13.727	0.05	.000
	post I	1.87	.111			
	Pre	1.24	.217	-15.774-	0.05	.000
	post II	1.94	.107			
	Pre	1.24	.112	-14.604-	0.05	.000
	post III	1.90	.158			
Cleaning and Disinfection	Pre	1.43	.376	-6.237-	0.05	.000
	post I	1.88	.103			
	Pre	1.43	.376	-5.205-	0.05	.000
	post II	1.81	.184			
	Pre	1.43	.376	-7.268-	0.05	.000
	post III	1.95	.062			
Screening area	Pre	1.32	.270	-11.938-	0.05	.000
	post I	1.84	.129			
	Pre	1.32	.270	-13.082-	0.05	.000
	post II	1.91	.097			
	Pre	1.32	.270	12.918	0.05	.000
	post III	1.90	.198			
Universal Masking	Pre	1.27	.354	-8.151-	0.05	.000
	post I	1.86	.152			
	Pre	1.27	.354	-8.148-	0.05	.000
	post II	1.85	.197			
	Pre	1.27	.354	-8.157-	0.05	.000
	post III	1.88	.287			
Personal Protective Equipment (PPE)	Pre	1.31	.334	-8.659-	0.05	.000
	post I	1.90	.136			
	Pre	1.31	.334	-10.836-	0.05	.000
	post II	1.96	.067			
	Pre	1.31	.334	-10.836-	0.05	.000
	post III	1.96	.067			

F=frequency, %=percentage, MS=Mean of score, SD= Standard deviation, Ass=Assessment level 1-1.33 (Poor), 1.34-1.66 (Fair), 1.67-2 Good (G).

Table 2 shows that the nurses not applied practices in the majority of domains at pre-test. But alteration practices after applying hemodialysis guidelines for patients with coronavirus disease at Post-test 1, post-test 2, and Post-test 3.

Table 3 indicated nurses practice domains Pre-& (Post1-2-3) pretest vs post A highly statistically significant differences were found between pretest and posttest.

DISCUSSION

The goal of this study was to reveal the extent of nurses' need to apply guidelines for hemodialysis with COVID-19 in hemodialysis units and adhere to the guideline and follow the practices to decrease contamination and transmission of coronavirus among nurses and patients. COVID-19 is an important public health issue that has implications for a significant number of morbidities and mortalities.

Through the data analysis distribution of demographic variables, the percentage distribution of participants according to their age groups of this study group reveals that the majority of nurses (n=40) were within thirty years of age, ages ranged between (20-30) years constituted the highest percentage (40%) of the study sample, while the ages of 49 and over were the lowest percentage (10%). According to the researchers' perspective, the hospital policy favors hiring active nurses (25–30 years old) in the hemodialysis department because the department needs active, efficient nurses. These results are consistent with a study of Nurses' Job Satisfaction in Respiratory Isolation Units of Coronavirus Disease in Iraq. where the majority of participants (n=300) ages between (19-28) years (54.3%), while 49 and over (5.3%)¹².

Although the male-to-female ratio was female more than male, from the researchers' perspective, working in the hemodialysis center required patience and perseverance nurses, results agree with a study Nurses' Job Satisfaction Levels: Its Effect on Quality of Nursing Care Offered to Patients Undergoing Hemodialysis in Egypt where the majority of participants (n=52) the female accounting for more than three-quarters (80.2%) of the study sample¹³. The female percentage higher than male.

According to the findings of the current study, institute nurses made up the majority of the sample in the study group (60%) this result agreed with a study conducted in Iraq at the 4 hospitals in Baghdad Karkh two hospitals (Al-Imameen Al-Kazimin Hospital and Dar Al-Salam Hospital) Rusafa two hospitals (Al Atta Hospital and Medical City Department of Al-Shifa Crisis Center) city of Baghdad, which showed that the majority of participants (n=300%, 40.7%) had graduated from institute¹² and disagreed with study Assessment of anxiety and depression status among health care workers from Baghdad post cure from COVID-19 in Iraq. bachelor and higher was (60.7%)⁷. The study showed that the highest proportion of participants (30%) of the experience years in nursing was (1-5 years) (30%). This result agreed with the study conducted in Iraq Baghdad which finding the majority nurses experience 1-5 years (50.7%)¹². This finding disagrees with the study conducted in Egypt this study shows the majority nurses experience was more 10 years (30.7%)¹³.

During the study the highest percentage (40%) of the sample regarding to experience years in the dialysis unit the finding was (1-5) years (50%). while the lowest percentage (5%) of the study sample was more than 20 years this result agreed in the study Efficacy of COVID-19 Prevention Educational Program on Nurses' knowledge and Practices at Hemodialysis Unit in Egypt the finding was (1-5) years (50%) and disagree with the study Assessment of Knowledge, Attitudes, and Practices towards COVID-19 among Hemodialysis Nurses during the

COVID-19 Outbreak in Ma'an Governorate Hospitals-Jordan the result was y More than 5 years' experience years in the dialysis unit (60%)¹⁵.

There were 30 nurses who participated in the study. The finding of data analysis of nurses' practice was (80.53%) of nurses had poor practice while (11.11 %) of nurses have fair practice and (8.33%) was good practice. Concerning, the universal mask domain result was a poor in nursing practice this result agrees with the study Efficacy of COVID-19 Prevention Educational Program on Nurses' knowledge and Practices at Hemodialysis Unit. The result was (77.78%) poor practice¹⁴. Concerning, the patient's placement domain result was a poor in nursing practice before applying the guideline program while the practice elevated after the program applied this result similar with the study Efficacy of COVID-19 Prevention Educational Program on Nurses' knowledge and Practices at Hemodialysis Unit. The result was (77.78%) poor practice before applying the program while the percent is change after applying the program to 96.30% of nurses have good practice¹⁴.

The personal protective domain was a poor level of nursing practice this result supported by the study Infection control measures to prevent outbreaks of COVID-19 in Quebec hemodialysis units in Canada the result was (68%) of nurses was poor in practice¹⁵. and disagrees with the study. Assessment of Knowledge, Attitudes, and Practices towards COVID-19 among Hemodialysis Nurses during the COVID-19 Outbreak in Ma'an Governorate Hospitals-Jordan the finding was (68%) of nurses have good practice¹⁶. The visitor access, Screening area and domain this result disagree with the study conducting in Jordan the finding was (68%) of nurses have good practice¹⁶. Cleaning and disinfection domain were fair in nursing practice this result agrees with the study Knowledge, Attitudes, and Practices towards COVID-19 among Hemodialysis Nurses during the COVID-19 Outbreak in Ma'an Governorate Hospitals-Jordan the finding was (68%) of nurses have good practice¹⁶.

CONCLUSIONS

The nurses need more interaction with guideline for hemodialysis with covid to deal with suspect COVID-19 infection. This research concluded that the nurse had poor to fair level of practice as they work with patient with COVID_19.

RECOMMENDATIONS

This research suggests protect the well- being of healthcare personnel, comprehensive assistance should be offered.

It recommends that all HCPs receive regular and comprehensive training (how to deal with the pandemic disease).

More research is needed on how applied guideline for hemodialysis patients with covid-19.

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