

Effectiveness of an Educational Program on Nurses' Knowledge, about the Preventive Measures of Transmission of COVID-19 in Baghdad Teaching Hospital.

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Keywords:

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ABSTRACT

The study aimed to evaluate the nurses' knowledge about preventive measures to avoid transmission of COVID-19. To determine the effectiveness of an Interventional Program on nurses' knowledge about preventive measures to avoid transmission of COVID-19. To find out the relationship between nurses' knowledge and socio-demographic characteristic (level of education, years of experiences, and number of training sessions). A quasi-experimental design using test-re test approach for study group and control group participants employed in Baghdad Teaching Hospital being from 20th -23th of December 2020, then after period post-test-1 tested for both groups (in 23th December 2020). The study is conducted at Baghdad Teaching Hospital. A non -probability (purposive) sample of (60) nurse's (males and females), who were working in Baghdad Teaching Hospitals from different units. Study sample divided in to two groups, (30) nurses as study group were exposed to the educational program, and the other (30) nurses were not exposed to the educational program considered as the control group. The study found that before implementing the program, both groups had a low level of knowledge about the Preventive Measures of Transmission of COVID-19, but after implementing the program, the study group showed a significant improvement in nurses' knowledge about the Preventive Measures of Transmission of COVID-19. While the control group there was no significant improvement in nurses' knowledge about the Preventive Measures of Transmission of COVID-19. Prior to implementing the program, the study revealed that the nurses had knowledge about the Preventive Measures of Transmission of COVID-19. However, with a high degree of engagement in the educational program, these knowledge in the study group considerably increased in post-test. In the original test, there was no relationship between nurses' knowledge and socio-demographic characteristic (level of education, years of experiences, and number of training sessions). The study recommends to a Prepare a structured educational program about the Preventive Measures of Transmission of COVID-19 to improve the knowledge, attitude, and practice of nursing staff. The need for care guidelines with ongoing educational programs to increase and refresh Nurses' knowledge, attitude, and practice about the

Preventive Measures of Transmission of COVID-19, these Guidelines could be printed and distributed by hospitals in the specific areas for use as a reference. Conducting further studies regarding the improvement of nurses' knowledge, attitude and practices about the Preventive Measures of Transmission of COVID-19 and preparation in order to increase the level of nursing knowledge, attitude and practices performance over the years. A similar study can be conducted in other hospital settings.



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1. INTRODUCTION

According to the World Health Organization (WHO), infectious diseases are globally the third leading cause of death. The situation of emerging epidemics around the world poses a great danger to individuals and societies. The current and most important pandemic in recent times is the COVID-19 pandemic, Due to its rapid spread, virulence, death in severe cases, and unknown treatment, it poses a significant risk to human life and health. COVID-19 causes various degrees of problems due to its enormous impact on the health of the general community [1]. Coronavirus disease, formally designated as COVID-19 by WHO, is an extremely infectious respiratory disease caused by a severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). COVID-19 is like influenza symptoms, including elevating body temperature, cough, and shiver, which can lead to respiratory infection crisis and death [2]. On 2020 April 18, COVID-19 has spread to 198 countries, infecting 2.4 million people and causing 150,000 deaths across the global, therefore considered a global pandemic. WHO explains condition of pandemic as two criteria were met: Outbreak was affecting more than one area, and cases in each country were beginning to develop by community conduction [3]. Iraq has presented a cure rate lower than those informed by Iran, Turkey and Jordan; and higher than Saudi Arabia and Kuwait. Healthcare workers represented about (5percent) of the total confirmed cases. These results enable the researchers to know COVID-19 epidemiology and prevalence in Iraq that can aware the community population to the danger of this unusual epidemic and serve as a reference for future studies [4]. Nursing is an essential component of medical care, and nurses' knowledge about disease directly affects patient outcomes [5].

2. Methodology

A quasi-experimental design was carried out from 28 February 2020, to 15 march 2022, at Baghdad teaching hospital in Baghdad city. A non –probability (purposive) sample of (60) nurse's (males and females), who were working in Baghdad Teaching Hospitals from different units.

Study sample divided in to two groups, (30) nurses as study group were exposed to the educational program, and the other (30) nurses were not exposed to the educational program considered as the control group. The data collection process uses the self-administrating technique in which the nurse fills the questionnaire form by themselves. the Instrument consist five domain: Nurses' knowledge related to the nature and physiology of the disease (Coronavirus), the knowledge of nurses related to the transmission of COVID-19, the knowledge of nurses related to the necessary preventive measures in dealing with suspected, probable and confirmed cases of COVID-19, Nurses' knowledge related to COVID-19 treatment, and the knowledge of nurses related to the complications of COVID-19.

3. Result

Table (1) Distribution of the studied groups according to (SDCv.) with comparisons significant

SDCv.	Classes	Study		Control	
		No	%	No	%
Gender	Male	10	33.3	8	26.7
	Female	20	66.7	22	73.3
Age Groups Yrs.	20 _ 29	16	53.3	14	46.7
	30 _ 39	9	30.0	7	23.3
	40 _ 49	5	16.7	9	30.0
Educational level	Nursing high school graduate	8	26.7	11	36.7
	Nursing Diploma graduate	15	50.0	12	40.0
	Nursing graduate	7	23.3	7	23.3
Current workplace	Emergency unit	6	20	5	16.7
	Intensive care units	4	13.3	4	13.3
	Surgical units	4	13.3	3	10
	Medical units	4	13.3	4	13.3
	Hemodialysis units	6	20	4	13.3
	Respiratory units	1	3.3	2	6.7
	Cardiac care unit(CCU)	1	3.3	2	6.7
Years of service in the nursing field	< 5	13	52	11	44
	5 _ 10	7	28	4	16
	11 _ 20	4	16	6	24
	> 20	1	4	4	16
Participation in courses related to corona virus of:	No	2	6.7	3	10
	Yes	28	93.3	27	90

f: Frequency, %: Percentage

This table demonstrates represents the socio -demographic characteristics of the present study (study and control group). The female more than male at both groups, the high percentage of age group ranged from (20-29) years at both groups, Nursing Diploma graduate have a high percentage at both groups, the high percentage at current work place were at emergency unit, the high percentage have less than five years of service in the nursing field, and high percentage at both groups participated in courses related to corona virus.

Table (2) Descriptive Statistics of the studied groups according to (Nurse's Knowledge about COVID-19) with comparisons significant

Nurse's Knowledge about COVID-19	Period	N o.	Study				Control			
			MS	SD	RS %	C.S. P-value	MS	SD	RS %	C.S. P-value
The First Domain: Nurses' knowledge related to the nature and physiology of the disease (Corona virus)										
1. Corona viruses are enveloped positive...	Pre	30	0.27	0.45	27	0.000	0.27	0.45	27	0.125
	Post	30	0.90	0.31	90	HS	0.40	0.50	40	NS
2. The most important antibodies in COVID-19 are...	Pre	30	0.30	0.47	30	0.000	0.23	0.43	23	1.000

	Post	30	1.00	0.00	100	HS	0.23	0.43	23	NS
3. Antibodies are formed in a person's body days after the person's infection ..	Pre	30	0.37	0.49	37	0.000	0.27	0.45	27	0.500
	Post	30	0.90	0.31	90	HS	0.33	0.48	33	NS
4. Symptoms of Covid-19 disease can include increased heart rate and the reason is due to ...	Pre	30	0.23	0.43	23	0.000	0.27	0.45	27	0.625
	Post	30	0.97	0.18	97	HS	0.33	0.48	33	NS
5. How long the corona virus stays alive in the air is ...	Pre	30	0.23	0.43	23	0.000	0.2	0.41	20	0.063
	Post	30	0.93	0.25	93	HS	0.37	0.49	37	NS
6. The age group most affected by COVID-19 are ...	Pre	30	0.37	0.49	37	0.000	0.37	0.49	37	0.500
	Post	30	0.97	0.18	97	HS	0.43	0.50	43	NS
7. Quarantine is known as a stone ...	Pre	30	0.20	0.41	20	0.000	0.30	0.47	30	0.500
	Post	30	0.93	0.25	93	HS	0.37	0.49	37	NS
8. Ways to prevent COVID-19 are ...	Pre	30	0.40	0.50	40	0.000	0.47	0.51	47	1.000
	Post	30	0.93	0.25	93	HS	0.50	0.51	50	NS
9. The period of isolation for patients (Covid-19) is ...	Pre	30	0.20	0.41	20	0.000	0.23	0.43	23	0.500
	Post	30	0.97	0.18	97	HS	0.30	0.47	30	NS
10. The incubation period for COVID-19 is ...	Pre	30	0.20	0.41	20	0.000	0.13	0.35	13	1.000
	Post	30	0.93	0.25	93	HS	0.13	0.35	13	NS
11. When does the COVID-19 infection period begin?	Pre	30	0.20	0.41	20	0.000	0.23	0.43	23	1.000
	Post	30	0.97	0.18	97	HS	0.23	0.43	23	NS
12. COVID-19 is caused by a virus called	Pre	30	0.20	0.41	20	0.000	0.37	0.49	37	0.125
	Post	30	0.93	0.25	93	HS	0.50	0.51	50	NS
13. The diagnostic test that determines the presence of the virus (Covid-19) in the body is ...	Pre	30	0.33	0.48	33	0.000	0.33	0.48	33	0.250
	Post	30	0.93	0.25	93	HS	0.43	0.50	43	NS
14. There are sub-families of corona viruses, which are ...	Pre	30	0.33	0.48	33	0.000	0.40	0.50	40	1.000
	Post	30	1.00	0.00	100	HS	0.40	0.5	40	NS
15. SARS-CoV-2 belongs to the strain	Pre	30	0.33	0.48	33	0.000	0.27	0.45	27	0.500
	Post	30	0.93	0.25	93	HS	0.33	0.48	33	NS
The Second Domain: The knowledge of nurses related to the transmission of COVID-19										

1. COVID-19 is transmitted through sexual contact	Pre	30	0.33	0.48	33	0.00 0	0.37	0.49	37	0.50 0
	Post	30	0.97	0.18	97	HS	0.43	0.50	43	NS
2. COVID-19 is transmitted through respiratory droplets	Pre	30	0.33	0.48	33	0.00 0	0.33	0.48	33	1.00 0
	Post	30	0.93	0.25	93	HS	0.37	0.49	37	NS
3. People infected with COVID-2019 cannot transmit the virus to others when they do not have a fever	Pre	30	0.27	0.45	27	0.00 0	0.30	0.47	30	1.00 0
	Post	30	0.97	0.18	97	HS	0.33	0.48	33	NS
4. Corona virus cannot be transmitted from the infected deceased to others	Pre	30	0.27	0.45	27	0.00 0	0.4	0.50	40	1.00 0
	Post	30	0.97	0.18	97	HS	0.43	0.50	43	NS
5. The contagious period is the time when a person infected with the COVID-19 virus can transmit the virus to other people	Pre	30	0.30	0.47	30	0.00 0	0.33	0.48	33	1.00 0
	Post	30	0.97	0.18	97	HS	0.37	0.49	37	NS
The Third Domain: The knowledge of nurses related to the transmission of COVID-19										
1. The use of personal protective equipment is necessary during the care or examination procedures, such as the withdrawal of sputum (sputum) samples	Pre	30	0.30	0.47	30	0.00 0	0.33	0.48	33	0.50 0
	Post	30	0.97	0.18	97	HS	0.40	0.50	40	NS
2. Suspected cases of MERA-CoV infection should be taken after triage in a negative pressure respiratory isolation room	Pre	30	0.30	0.47	30	0.00 0	0.23	0.43	23	0.50 0
	Post	30	0.97	0.18	97	HS	0.3	0.47	30	NS
3. Training and monitoring of standard precautionary measures required by caregivers in suspected or probable cases of MERS-CoV infection	Pre	30	0.27	0.45	27	0.00 0	0.30	0.47	30	0.50 0
	Post	30	0.93	0.25	93	HS	0.37	0.49	37	NS
4. A complete list of all the people present and in contact with the patient confirmed to be infected with the Corona virus must be submitted	Pre	30	0.33	0.48	33	0.00 0	0.37	0.49	37	0.25 0
	Post	30	0.93	0.25	93	HS	0.47	0.51	47	NS
5. A person with mild symptoms of COVID-19 should stay at home until clinical symptoms and negative PCR test results are resolved	Pre	30	0.43	0.50	43	0.00 0	0.37	0.49	37	0.12 5
	Post	30	0.97	0.18	97	HS	0.50	0.51	50	NS
The Fourth Domain: Nurses' knowledge related to COVID-19 treatment										
1. There is currently no effective treatment for COVID-19, but early symptomatic supportive treatment can help most patients recover from the infection	Pre	30	0.33	0.48	33	0.00 0	0.30	0.47	30	0.25 0
	Post	30	0.97	0.18	97	HS	0.40	0.50	40	NS
2. The covid vaccine is available in the market	Pre	30	0.30	0.47	30	0.00 0	0.30	0.47	30	0.06 3

	Post	30	0.97	0.18	97	HS	0.47	0.51	47	NS
3. Antibiotics are the first choice for COVID-19 treatment	Pre	30	0.30	0.47	30	0.00	0.30	0.47	30	0.25
	Post	30	0.97	0.18	97	HS	0.40	0.50	40	NS
4. The treatment options currently available for Covid-19 patients are vaccines	Pre	30	0.30	0.47	30	0.00	0.37	0.49	37	0.50
	Post	30	0.97	0.18	97	HS	0.43	0.50	43	NS
5. There is a specific drug treatment available for COVID-19	Pre	30	0.37	0.49	37	0.00	0.27	0.45	27	1.00
	Post	30	0.97	0.18	97	HS	0.30	0.47	30	NS
The Fifth Domain: Nurses' knowledge related to the complications of COVID-19										
1. Acute respiratory distress syndrome (ARDS) is an important complication of COVID-19 patients	Pre	30	0.30	0.47	30	0.00	0.30	0.47	30	0.50
	Post	30	0.97	0.18	97	HS	0.37	0.49	37	NS
2. COVID-19 can lead to pneumonia, respiratory failure and death	Pre	30	0.30	0.47	30	0.00	0.33	0.48	33	0.37
	Post	30	0.97	0.18	97	HS	0.43	0.50	43	NS
3. Complications and physical damages disappear for patients recovering from the Corona virus who were admitted to the hospital, after 3 weeks of leaving the hospital	Pre	30	0.27	0.45	27	0.00	0.33	0.48	33	0.50
	Post	30	0.97	0.18	97	HS	0.40	0.50	40	NS
4. The liver is one of the most affected organs due to infection with the Corona virus	Pre	30	0.30	0.47	30	0.00	0.30	0.47	30	0.50
	Post	30	0.97	0.18	97	HS	0.37	0.49	37	NS
5. There is no effect of the Corona virus on the cognitive and mental capabilities of the patient who is recovering from the virus	Pre	30	0.30	0.47	30	0.00	0.37	0.49	37	0.50
	Post	30	0.97	0.18	97	HS	0.43	0.50	43	NS

(*) HS: Highly Sig. at $P < 0.01$; S: Sig. at $P < 0.05$; NS: Non Sig. at $P > 0.05$. C X S: Testing coincidence between Control and Study groups
 Testing based on: McNemar test.

Results shows that no significant differences at $P > 0.05$ are accounted regarding controlled group along pre to post periods, while the study group are assigned highly significant differences at $P < 0.01$ along pre to post periods of time with respect to "Nurse's Knowledge about COVID-19" completely with whom were participated with the proposed program.

For summarizes of preceding results, it could be conclude that proposed instructional program in charge of "Nurse's Knowledge about COVID-19" are recorded a positive and a meaningful effectiveness perfectly along all of studied MCQs' items.

Table (3): Relationships (Analysis of Covariance) concerning Knowledge main domain responding for study group regarding [SDCv.]

Source of Variation	Type III Sum of Squares	d.f.	Mean Square	F Statistic	Sig. Levels	C.S. (*)
Intercept	39510.1	1	39510.1	2294.39	0.000	HS
Gender	0.901	1	0.901	0.052	0.823	NS
Age Groups	1.124	2	0.562	0.033	0.968	NS
Educational Level	5.361	2	2.68	0.156	0.857	NS
Current workplace	150.2	8	18.772	1.09	0.427	NS
Years of service in the nursing field	8.003	3	2.668	0.155	0.925	NS
Error	223.9	13	17.22	R-Squared = 0.485		
Total	276147.5	30				

(*) HS: Highly Sig. at $P < 0.01$; Non Sig. at $P > 0.05$; Statistical hypothesis based on Analysis of Covariance (ANCOVA).

Results shows that weak relationships are proved with [SDCv.], since no significant relationships were accounted at $P > 0.05$. In addition to preceding results, the determination coefficient, which are indicating that studied influences of assignable factors, the intercept (i.e. other sources of variation that not included in the studied model or known non assignable factors) should be more informative as unique meaningful influences interpretation the studied marker (i.e. The nurse's knowledge improvements that occurred due to applying the suggested intervention program), and finally the percent value of (R-Square), is interpretation the amount of variation among the marker's readings in relative to studied [SDCv.]. And according to that, it could be concludes that studied questionnaire of nurses' knowledge improvements through applying the suggested of an intervention program could be generalize on the studied population even though differences within their [SDCv.].

4. Discussion

Part I: Discussion of Socio-Demographic Characteristics of Nurses: The high percentage 20 (66.7%) of nurses in study group and [22 (73.3%)] in control group were females, this result agrees with the study done in northern Ethiopia [6] is a cross-sectional study, show that 58.1% of the participants who are female. In relation to age, the high percentage [16 (53.3%), 14 (46.7%)] of nurses in both study and control groups respectively were within the age group (20-29 years). This result agrees with the study done in Pakistan [7] that found the high percentage (37%) of nurses are within the age group (20 - 25) years. Related to the level of education, the most nurses were Nursing Diploma graduate [15 (50%) in study group and 12 (40%)] in control group, this result agree with the study done in Pokhara, Nepal [8] that found the high percentage (43.5%) of nurses were diploma. Current workplace: in the study group 6 (20%) of nurses were working in General surgery and emergency wards while 5 (16.7 %) of nurses in control group were working in General surgery wards, this result disagree with a study conducted in [9] which shows that the high percentage of nurses (23.5%) were working at CUU. Years of experience in the nursing field: the majority of both groups are nurses who have (1-5 years) of experience in current work place [13 (52 %) and 11 44%] in the study group.

This result agrees with the study [10] done in Pakistan that found the high percentage of nurses who have (>5 years) of experience. Participation in courses related to corona virus: the most of the nurses [28 (93.3%) in study group and 27(90%)] in control groups] have taken these sessions, and this result disagree with a study conducted in [9] which shows that the high percentage of nurses didn't participation in training program.

Part 2: Discussion of Nurse's Knowledge about COVID-19: Results shows that no significant differences at $P > 0.05$ are accounted regarding controlled group along pre to post periods, while the study group are assigned highly significant differences at $P < 0.01$ along pre to post periods of time with respect to "Nurse's Knowledge about COVID-19" completely with whom were participated with the proposed program, and this result agree

with study done in Egypt [11], that show the significant differences between pretest and post-test after educational program where the knowledge of nurses about COVID-19 increased after application the education program.

Part3: Discussion of Relationships (Analysis of Covariance) concerning Knowledge, responding for study group regarding "[SDCv.]"

Results shows that weak relationships are proved with [SDCv.], since no significant relationships were accounted at $P > 0.05$. this result disagree with study done in Egypt [12], that show there was a positive correlation between total nurses' knowledge, attitude and practice and their data immediately after guideline implementation regarding their age, job title, area of specialty, year of experience, and level of education

5. Conclusion

According to the findings of the present study, the researcher concluded the following: Despite the relatively limited number of nurses who participated in this study, the educational Program was effective on study group and improve their Knowledge about the Preventive Measures of Transmission of COVID-19, this program can be applied on larger sample of nurses across Iraq. There is no relationship between (Gender, Age Groups, Educational Level, Current workplace, and Years of experience in the nursing field) with Nurses' knowledge about the Preventive Measures of Transmission of COVID-19 in the (pretest, and post-test)

6. Recommendation

From conclusion and study efforts the researcher recommends the following: Prepare a structured educational program about the Preventive Measures of Transmission of COVID-19 to improve the knowledge of nursing staff. The need for care guidelines with ongoing educational programs to increase and refresh Nurses' knowledge about the Preventive Measures of Transmission of COVID-19, these Guidelines could be printed and distributed by hospitals in the specific areas for use as a reference. Conducting further studies regarding the improvement of nurses' knowledge about the Preventive Measures of Transmission of COVID-19 and preparation in order to increase the level of nursing knowledge, attitude and practices performance over the years. A similar study can be conducted in other hospital settings.

7. Ethical Clearance

All experimental protocols were authorized by the College of Nursing, and all experiments were carried out according to established protocols.

8. References

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