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ORIGINAL

Effectiveness of an Interventional program on nurses' practices about the preventive measures of transmission of COVID-19 in Baghdad Teaching Hospital

Eficacia de un programa de intervención sobre prácticas de enfermería sobre las medidas preventivas de transmisión de COVID-19 en el Hospital Docente de Bagdad

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Abstract

Objective: Evaluate the nurses' Practices about the preventive measures of transmission of COVID-19.And determining the effectiveness of an Interventional Program on nurses' Practices about the preventive measures of transmission of COVID-19.

Methodology: A quasi-experiment study design (Tow group: pre-test, post-test) was used. This study was conducted in Baghdad Teaching Hospital for the period from (28th February 2020 to 1th march,2022) on a non-probability (purposive) sample consisting of 60 nurses (30 control group and 30 study group).A questionnaire consisted of two parts: First part: Demographic characteristics of the nursing staff and Second part:observational checklist sheet related to the nurses' practice about the Preventive Measures of Transmission of COVID-19. Descriptive and inferential statistics were used to analyze the results of the study using the Statistical Package of Social Sciences (SPSS) version 25 and Microsoft Excel (2010).

Result: The results show that both groups have low level of Practice(Percentile Grand Mean of Score [PGMS] 19.3 in study group and 18.84 in control group in pre-test) about the Preventive Measures of Transmission of COVID-19 .After application the interventional program study group responses increase to become PGMS 90.28 in post-test, while the control group responses were PGMS 21.25 in post-test, and that indicate to successful the Interventional program.

Conclusion: The interventional Program has successful effect on study group and improve their Practices about the Preventive Measures of Transmission of COVID-19.

Key words: COVID-19, interventional program, nurses' practices.

Resumen

Objetivo: Evaluar las Prácticas de enfermería sobre las medidas preventivas de transmisión de COVID-19. Y determinar la efectividad de un Programa de Intervención sobre las Prácticas de enfermería sobre las medidas preventivas de transmisión de COVID-19.

Metodología: Se utilizó un diseño de estudio cuasi-experimental (Grupo remolque: pre-test, post-test). Este estudio se llevó a cabo en el Hospital Universitario de Bagdad durante el período comprendido entre el 28 de febrero de 2020 y el 1 de marzo de 2022, en una muestra no probabilística (intencional) compuesta por 60 enfermeras (30 del grupo de control y 30 del grupo de estudio). Un cuestionario constaba de dos partes : Primera parte: Características demográficas del personal de enfermería y Segunda parte: Ficha de cotejo observacional relacionada con la práctica de los enfermeros sobre las Medidas Preventivas de Transmisión del COVID-19. Se utilizó estadística descriptiva e inferencial para analizar los resultados del estudio utilizando el Paquete Estadístico de Ciencias Sociales (SPSS) versión 25 y Microsoft Excel (2010).

Resultado: Los resultados muestran que ambos grupos tienen bajo nivel de Práctica (Percentil Gran Media de Puntaje [PGMS] 19.3 en grupo estudio y 18.84 en grupo control en pretest) sobre las Medidas Preventivas de Transmisión de COVID-19. Luego de la aplicación el las respuestas del grupo de estudio del programa de intervención aumentan para convertirse en PGMS 90,28 en la prueba posterior, mientras que las respuestas del grupo de control fueron PGMS 21,25 en la prueba posterior, y eso indica que el programa de intervención tuvo éxito.

Conclusión: El Programa de intervención tiene efecto exitoso en el grupo de estudio y mejora sus Prácticas sobre las Medidas Preventivas de Transmisión de COVID-19.

Palabras clave: COVID-19, programa intervencionista, prácticas de enfermería.

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[1].

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[2].

Nursing is an essential component of medical care, and nurses' knowledge and practice about disease directly affects patient outcomes. Similarly, during an outbreak, good nurses' practice play positive roles in improving the recovery rate, reducing the length of the hospital stay and mortality, and preventing in-hospital infection and occupational exposure[3].

To date, most studies focus on the KAP of the general public, and few have investigated the KAP of nurses. To further understand the current status of the KAP of nurses towards the prevention and control of COVID-19 during the outbreak, we conducted a cross-sectional survey of some hospital nurses[4].

Health care workers (HCWs) are the primary health-care providers in contact with patients and are an important source of exposure to infected cases in health-care settings; thus, HCWs are expected to be at high risk of infection[5].

The background show the dangerous of COVID19 and important the of nurses' Practices about the Preventive Measures of Transmission of COVID-19 so we decided study the effectiveness of an Interventional Program to determine the importance of program, so positive effect of program will encourage health institutions and hospitals to establish interventional programs to enhance the practices and thus achieve better goals for patient and decrease spread of COVID-19 .

Methodology

The study was designed as a quasi-experiment design non - probability purposive sample using a test-re-test approach. Participants employed were 60 nurses worked at Baghdad Teaching Hospital divided into two groups (30 nurses in the control group and another 30 in the study group), and being, tested in two periods pre-test, post-test, the study begin from (28th February 2020 to 1th march,2022) A questionnaire was built as a data collection tool and consisted of two parts:

Part I: Demographic status includes the general information of the nurses (Gender, Age Groups, Educational level, Current workplace, Years of service in the nursing field, and Participation in courses related to corona virus)

Part II: Observational checklist sheet related to the nurses' practice about the Preventive Measures of Transmission of COVID-19 consist of three domains:

First domain: Identify the patient and preparing the materials, second domain: practices related to personal protective equipment, and third domain: preventive practices to avoid transmission of the virus. The questionnaire aim for study purposes and involves relevant topics to the study subject and the interventional program. The validity of the questionnaire and the interventional program were verified by presenting it to (15) experts. Descriptive and inferential statistics were used to analyze the results of the study using the Statistical Package of Social Sciences (SPSS) version 25 and Microsoft Excel (2010) test the participants' knowledge. The questionnaire aim for study purposes and involves relevant topics to the study subject and the interventional program. The validity of the questionnaire and the interventional program were verified by presenting it to (15) experts. Descriptive and inferential statistics were used to analyze the results of the study using the Statistical Package of Social Sciences (SPSS) version 25 and Microsoft Excel (2010).

The participants were fully acquainted with the current study and its aims and then voluntary verbal consent was obtained in order to participate in the study. ethical approval was obtained from the ethical committee of research in the Faculty of Nursing/University of Baghdad regarding confidentiality and anonymity of participants.

Results

Table I reveals that the high percentage 20 (66.7%) of nurses in study group and [22 (73.3%)] in control group were females and the high percentage [16 (53. 3%), 14 (46.7%)] of nurses in both study and control groups respectively were within the age group (20-less than 30 years).

Concerning the educational level, most nurses were Nursing Diploma graduate [15 (50%) in study group and 12 (40%)] in control group. Related to Current work place, 6 (20%) of nurses in the study group were working in Emergency unit and Hemodialysis units, while 5 (16.8%) of nurses in control group were working in Emergency unit. As to the number of years in current work place, the majority of both groups are nurses who have (> 5 years) of experience in current work place [13 (43, 3 %) and 11

(36.7%)] in the study group. Regarding to participation in training sessions about corona virus, most [28 (93.3%) in study group and 27(90%)] in control groups] of the nurses have taken these sessions.

As for self-education the majority of nurses [27(90%) in study group and 28 (93.3%)] in control groups] were self-educated. Respect to subjects of studied (SDCv.), results shows that studied groups recorded no significant differences at P>0.05, and that is reflecting validity of the selected subjects due to their similarity status in light of that variables, as well as preceding results indicating that two studied groups are thrown from the same population in light of (SDCv.), and that are more reliable for this study, since any meaningful deviation between the studied meaningful deviation between studied groups should be interpretation by effectiveness of applying the suggested program.

Table I : Distribution of the studied groups according to (SDCv.).

SDCv.	Classes	Study		Control	
		No	%	No	%
Gender	Male Female	10 20	33.3 66.7	8 22	26.7 73.3
Age Groups Yrs.	20 - less than 30 30 -less than 40 40 - 49	16 9 5	53.3 30.0 16.7	14 7 9	46.7 23.3 30.0
Educational level	Nursing high school graduate Nursing Diploma graduate Nursing graduate	8 15 7	26.7 50.0 23.3	11 12 7	36.7 40.0 23.3
Current workplace	Emergency unit Intensive care units Surgical units Medical units Hemodialysis unit Respiratory units Cardiac care unit(CCU)	6 4 3 4 6 5 2	20 13.3 10 13.3 20 16.8 6.6	6 4 3 4 5 4 4	20 13.3 10 13.3 16.8 13.3 13.3
Years of service in the nursing field	< 5 5 - less than 10 10 - less than 20 > 20	13 8 5 4	43,3 26,6 16.8 13.3	11 7 6 6	36,7 23,3 20 20
Participation in courses related to corona virus of:	No Yes	2 28	6.7 93.3	3 27	10 90
Do you educate yourself with specialized knowledge in your field of work in a self-reliant manner?	No Yes	3 27	10 90	2 28	6.70 93.3

Part 2: Descriptive Statistics of the studied groups according to (Nurse's Practices about COVID-19) along Pre to Post periods with comparisons significant

Table II-1 : Domain one: Identify the patient and preparing the materials.

Domain one: Identify the patient and preparing the materials	Period	No.	Study				Control			
			MS	SD	RS%	C.S. P-value	MS	SD	RS%	C.S. P-value
1.Get to know the right patient	Pre Post	30 30	0.13 1.53	0.35 0.68	6.5 76.5	0.000 HS	0.067 0.067	0.25 0.25	3.335 3.335	1.000 NS
2. Explain the procedure to the patient and what will be done	Pre Post	30 30	0.13 1.57	0.35 0.57	6.5 78.5	0.000 HS	0.17 0.17	0.38 0.38	8.50 8.50	1.000 NS
3. Prepare tools on a special cart in a sterile way before performing any nursing intervention	Pre Post	30 30	0.33 1.70	0.48 0.53	16.5 85	0.000 HS	0.43 0.43	0.57 0.57	21.5 21.5	1.000 NS
4. Before touching the mask, clean your hands by rubbing them with an alcohol-based disinfectant and by washing them with soap and water	Pre Post	30 30	0.67 1.93	0.71 0.25	33.5 96.5	0.000 HS	0.73 0.77	0.69 0.73	36.5 38.5	0.317 NS

The results of table(2-1),(2-2),(2-3)shows that no significant differences at P>0.05 are accounted in controlled group along pre to post periods, while study group subjects has assigned a highly significant differences at P<0.01 compared along pre to post periods for studied "Nurse's Practices about COVID-19" completely with whom were participated with the proposed program.

For summarizes of preceding results it could be conclude that the proposed of an instructional program in charge of "Nurse's Practices about COVID-19" has recorded a positively and a meaningful effects on whom were participated with the proposed program completely.

Table II-2 : Domain Two: Practices related to personal protective equipment.

Domain Two : Practices related to personal protective equipment	Period	No.	Study				Control			
			MS	SD	RS%	C.S. P-value	MS	SD	RS%	C.S. P-value
1. Wear a face shield	Pre Post	30 30	0.13 1.60	0.35 0.56	6.5 80	0.000 HS	0.20 0.20	0.41 0.41	10 10	1.000 NS
2. Wear clean gloves	Pre Post	30 30	0.47 1.90	0.63 0.31	23.5 95	0.000 HS	0.40 0.43	0.67 0.68	20 21.5	0.317 NS
3. Wear a N95 mask	Pre Post	30 30	0.20 1.93	0.41 0.25	10 96.5	0.000 HS	0.23 0.27	0.5 0.52	11.5 13.5	0.317 NS
4. Wear a medical gown-gown	Pre Post	30 30	0.27 1.93	0.45 0.25	13.5 96.5	0.000 HS	0.33 0.37	0.48 0.49	16.5 18.5	0.317 NS
5. Wear eye protection-glasses	Pre Post	30 30	0.37 1.97	0.56 0.18	18.5 98.5	0.000 HS	0.37 0.4	0.56 0.56	18.5 20	0.317 NS
6. Wear a hair cover	Pre Post	30 30	0.33 1.93	0.55 0.25	16.5 96.5	0.000 HS	0.43 0.47	0.68 0.68	21.5 23.5	0.317 NS
7. Always remove protective equipment carefully	Pre Post	30 30	0.43 1.93	0.63 0.25	21.5 96.5	0.000 HS	0.33 0.33	0.48 0.48	16.5 16.5	1.000 NS
8. Wash hands with soap and water or use an alcohol-based hand rub	Pre Post	30 30	0.80 1.97	0.76 0.18	40 98.5	0.000H S	0.57 0.6	0.68 0.67	28.5 30	0.317 NS
9. Wash the back and palms of the hands	Pre Post	30 30	0.63 1.87	0.72 0.43	31.5 93.5	0.000 HS	0.63 0.7	0.81 0.84	31.5 35	0.317 NS
10. Wash between fingers and nails	Pre Post	30 30	0.67 1.90	0.76 0.31	33.5 95	0.000 HS	0.7 0.77	0.75 0.73	35 38.5	0.157 NS
11. Rinse hands together with clean water	Pre Post	30 30	0.77 1.93	0.68 0.25	38.5 96.5	0.000 HS	0.8 0.87	0.81 0.82	40 43.5	0.317 NS

Table II-3 : Domain three: preventive practices to avoid transmission of the virus.

Domain three : preventive practices to avoid transmission of the virus	Period	No.	Study				Control			
			MS	SD	RS%	C.S. P-value	MS	SD	RS%	C.S. P-value
1. Shake hands well and dry them	Pre Post	30 30	0.63 1.93	0.76 0.25	31.5 96.5	0.000 HS	0.6 0.63	0.67 0.67	30 31.5	0.317 NS
2. Clean the hands before and after touching the patient's surroundings	Pre Post	30 30	0.57 1.83	0.73 0.46	28.5 91.5	0.000 HS	0.47 0.5	0.68 0.68	23.5 25	0.317 NS
3. Cleaning the income of the personal protective equipment	Pre Post	30 30	0.70 1.90	0.79 0.40	35 95	0.000 HS	0.57 0.67	0.68 0.71	28.5 33.5	0.180 NS
4. Avoid touching the eyes, nose and mouth with gloves or potentially contaminated hands	Pre Post	30 30	0.70 1.93	0.79 0.25	35 96.5	0.000 HS	0.63 0.67	0.81 0.8	31.5 33.5	0.317 NS
5. Avoid shaking hands with the patient	Pre Post	30 30	0.70 1.93	0.75 0.25	35 96.5	0.000 HS	0.57 0.57	0.68 0.68	28.5 28.5	1.000 NS
6. Routinely cleans and disinfects environmental surfaces	Pre Post	30 30	0.57 1.83	0.68 0.38	28.5 91.5	0.000 HS	0.53 0.53	0.73 0.73	26.5 26.5	1.000 NS
7. Put the suspect patient in a single room, well ventilated	Pre Post	30 30	0.70 2.00	0.75 0.00	35 100	0.000 HS	0.47 0.47	0.63 0.63	23.5 23.5	1.000 NS
8. Covering the mouth when coughing or sneezing	Pre Post	30 30	0.43 1.90	0.63 0.40	21.5 95	0.000 HS	0.63 0.67	0.85 0.84	31.5 33.5	0.317 NS
9. Implement the rule of social distancing, maintaining a distance of at least one meter from patients and other caregivers	Pre Post	30 30	0.50 1.87	0.68 0.43	25 93.5	0.000 HS	0.5 0.5	0.68 0.68	25 25	1.000 NS
10. Sterilizes and disinfects tools for measuring vital signs (stethoscope and medical thermometer) between one patient and another	Pre Post	30 30	0.50 1.97	0.68 0.18	25 98.5	0.000 HS	0.53 0.6	0.73 0.77	26.5 30	0.317 NS
11. Change gloves from one patient to another	Pre Post	30 30	0.47 1.97	0.68 0.18	23.5 98.5	0.000 HS	0.53 0.57	0.73 0.73	26.5 28.5	0.317 NS
12. Performs respiratory hygiene measures with persons with respiratory symptoms	Pre Post	30 30	0.47 2.00	0.63 0.00	23.5 100	0.000 HS	0.5 0.5	0.57 0.57	25 25	1.000 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 : Wilcoxon Signed Ranks Test

Discussion

Part 1: Discussion of Socio-Demographic Characteristics of Nurses (Table I).

1. Gender: The high percentage 20 (66.7%) of nurses in study group and [22 (73.3%)] in control group were females. This result agrees with is a cross-sectional study in northern Ethiopia show that 58.1% of the participants who are female[6]

2. 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-less than 30 years). This result agree with study done in Egypt[7] which shows that the high percentage of nurses ranged (48%) in age from (20-29) years[7]

3. Educational level: the most nurses were Nursing Diploma graduate [15 (50%) in study group and 12 (40%)] in control group. This result agree with study done in Bokhara, Nepal that found that the high percentage (43.5%) of nurses were diploma[8].

4. Current workplace: in the study group, 6 (20%) of nurses in the study group were working in Emergency unit and Hemodialysis units, while 6 (20%) of nurses in control group were working in Emergency unit. This study Disagree with a study conducted in Egypt which shows that the high percentage of nurses (23.5%) were working at CUU[9].

5. Years of services in the nursing field: the majority of both groups are nurses who have < 5 of experience in current work place [13 (43,3 %) and 11(36.7%)] in the study group. This result agrees with the study by (saqlain, *et al*.,2020) in Pakistan that found the high percentage of nurses who have (>5 years) of experience. And agree with the study done in Ho Chi Minh City that found the majority of (62.9%) of health care workers were less than 5 years[10].

6. 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 Egypt which shows that the high percentage of nurses didn't participation in training program[10].

7. Do you educate yourself with specialized knowledge in your field of work in a self-reliant manner: The result show that the most of the nurses in both study and control groups educate themselves with specialized knowledge and identify the resources from Internet and social networking sites. This result agree with study done in Bokhara, Nepal that found that the high percentage of nurses educate themselves and identify the resources from Internet and social networking sites[8].

Part IV- Discussion of Nurse's practice about COVID- (Table II-1,2,3)

Results shows that no significant differences at P>0.05 are accounted in controlled group along pre to post periods, while study group subjects has assigned highly significant differences at P<0.01 compared along pre to post periods for studying "Nurse's practice about COVID-19" for whom had participated with the suggested program.

This result consist with study done by in Egypt that show the total score for nurses' practices level in pre-test and post-test showed statistically significant differences between nurses' practices categories indicating adequate practice after the educational program compared with practice before the educational program. The researcher suggest that it could be conclude that proposed instructional program in charge of "Nurse's practice about COVID-19" are recorded a positive and a meaningful effectiveness perfectly[11].

Conclusion

According to the findings of the present study, the researcher concluded that despite the relatively limited number of nurses who participated in this study, the educational Program was effective on study group and improve their Practices about the Preventive Measures of Transmission of COVID-19, this program can be applied on larger sample of nurses across Iraq.

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Conflict of interest

Authors do not have any conflict of interest to declare.

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