An Interventional Program on Nurses Knowledge and Practice towards Phototherapy in Neonatal Care Units

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Abstracts: The aim of the study an interventional Program on nurses knowledge and Practice towards Phototherapy in neonatal care units. Quazi experimental design through using non randomized Purposive Sampling (Non probability) controlled trial is conducted to determine effectiveness of an interventional program on nurses performance regarding phototherapy from first. Dece-2022 to Jun2023. A non-randomized Purposive Sampling (Non probability) of nurses for the two group with different position. The sample was collected for the study group in Mosul neonatal care units that they was)60) nurse who are works on phototherapy in neonatal care units, who's agree to participate in the study, purposive sampling by choosing (30) nurses. The finding results refer to (pre-test =73.34% poor) , (post-test1=83.34% Good) and (post-test2=80 Good) in Knowledge.The study concluded that the research confirms that the training is an excellent method for enhancing nurses' knowledge and practice of phototherapy neonatal.

Keywords: Interventional Program, Nurses, Knowledge, Practice, Phototherapy, Neonatal Care Units.

1. INTRODUCTION

Phototherapy lights can also be paired with an irradiance meter so that clinicians can determine if the infant is receiving a therapeutic dose of light. Typically, optimal spectral irradiance is)25 -30microW/cm2/nm(, although higher spectral irradiance of)30-35 microW/cm2/nm(may be used in more severe cases. If the dose is too low, clinicians may adjust the placement of the infant, the height or output power of the light, or replace burnt out light elements[1].There are many types of phototherapy lights and modalities including LED, spotlights, fluorescent blue lights and halogen lights. LED lights have been shown to be the safest and most efficacious for administering phototherapy, as they give off the least heat and are associated with the lowest risk of hyperthermia and dehydration; although, this sometimes comes at an increased cost [2].Visible jaundice is seen in)30 % to 50 % (of infants and in about 10 % the hyperbilirubinaemia requires treatment. Phototherapy has become the routine both for treatment of neonates with hyperbilirubinaemia and for prophylaxis in high risk patients such as preterm infants. Evidence for efficacy of treatment for neonates' hyperbilirubinaemia was limited. Phototherapy had an absolute risk reduction rate of)10 % to 17 %(for prevention of serum bilirubin levels higher than 20mg/dl in healthy infants with Jaundice [3].Neonatal hyperbilirubinemia continues to be a leading cause of morbidity and mortality in resource-limited countries . Effective phototherapy is essential in treating neonatal jaundice and in preventing its Sequelae, including acute bilirubin encephalopathy and kernicterus. The quality of phototherapy can be determined by measuring the irradiance produced by the light bulbs using an irradiance meter [4].

2. MATERIEL AND METHODS

Before beginning the research steps, a proposal was submitted to the Scientific and Ethical Committee for Graduate Studies at the College of the Nursing/University of Mosul to declare the title and steps of the research, after which formal approval for the research title was obtained by Order No.98 dated 12/29/2022. Quazi experimental design through using non randomized Purposive Sampling (Non probability) controlled trial is conducted to determine effectiveness of an interventional program on nurses performance regarding phototherapy from first. Dece-2022 to Jun2023. A non-randomized Purposive Sampling (Non probability) of nurses for the two group with different position. The sample was collected for the study group in Mosul neonatal care units that they was)60) nurse who are works on phototherapy in neonatal care units, who's agree to participate in the study, purposive sampling by choosing (30) nurses.Data is analyzed by using Statistical Package for Social Science (SPSS) software for

Windows (Version 26) [5-10].

3. RESULTS AND DISCUSSIONS

Table (1): Distribution and homogeneity of the two samples (study and control) in terms of socio-demographic for research sample

Variables	Items	Study group		Control group		Test of Homogeneity
		F.	%	F.	%	(P-value)
Age	20-24	3	10%	0	0%	Levene's test (0.135)
	25-29	13	43%	8	27%	
	30-34	8	27%	13	43%	
	35-39	3	10%	8	27%	
	≥40	3	10%	1	%3	
Gender	Male	24	80%	19	63%	Fisher's exact test (0.252)
	Female	66	20%	11	37%	
Educational level	School nurse	6	20%	6	20%	Fisher's exact test (1.000)
	Nursing Institute	12	40%	13	43%	
	College of Nursing	12	40%	11	37%	
Experience	1-5	13	44%	13	43%	Levene's test (0.194)
	6-10	7	23%	9	30%	
	>10	10	33%	8	27%	
Work place experience	1	12	40%	4	13%	Levene's test (0.158)
	2	5	17%	7	23%	
	2>	13	%43	19	63%	
Participation in training courses	1	26	%87	19	63%	Levene's test (0.332)
	2	4	%13	11	37%	

The results shown in the table(1) indicate that there is homogeneity between the study and control samples, in terms of the probability value (P-value) accompanying the Levene's test, which is based on the value of the arithmetic mean in comparison, in addition to the Fisher's exact test, which is based on the ratio value. In comparison, where all results showed that all probability values are greater than (0.05), and this leads us to accept the null hypothesis that there is homogeneity between the two samples.

Table (2): Description the results for main parts in three tests(pre,post1 and post2)

Part	K Rank	Pre- test		Post 1		Post 2	
		No.	%	No.	%	No.	%
Characteristics of newborn baby	Poor	**22**	**73.34**	0	0	0	0
	Accept	8	26.66	5	16.66	6	20
	Good	0	0	**25**	**83.34**	**24**	**80**
Neonatal jaundice	Poor	**19**	**63.34**	0	0	0	0
	Accept	11	36.66	1	3.34	3	10
	Good	0	0	**29**	**96.66**	**27**	**90**
Phototherapy	Poor	**20**	**66.67**	0	0	0	0
	Accept	10	33.33	0	0	2	6.66
	Good	0	0	**30**	**100**	**28**	**93.34**

Nursing care of a neonate treated with phototherapy	Poor	**23**	**76.66**	0	0	0	0
	Accept	7	23.34	3	10	4	13.34
	Good	0	0	**27**	**90**	**26**	**86.66**

These table shows the results for main parts in three tests (pre-test ,post-test1 and post-test2), in terms that a deference's between each part..

Table (3): Comparison between correlated samples in study practice groups.

Pairwise Comparisons		
Sample 1-Sample 2	Test Statistic	Sig.
Pre test - Post1 test	-1.900	0.000
Pre test - Post2 test	-1.100	0.000
Post1 test - Post2 test	0.800	0.006

These results in these table are shown a significant differences between three comparisons (Pre test),(Post- test1) and (Pre test),(Post-test2) and (Post-test1) and (Post-test2) .

These study show in table (1) the distribution and homogeneity of the two samples (study and control), In terms of socio-demographic for research sample, The number of participants in this study is (60) nurses from the Mosul neonatal care units, whose ages range from (20 to 40 years or more), (30) nurses as a study groups and (30) as a control groups. the (p-value) according to (levenes test) for (age, gender, experience, workplace experience, number of training and Information's), Show that there are no significant variances and that the sample is homogeneous. In addition to the Fisher's exact test, which is based on the ratio value. In comparison, where all results showed that all probability values are greater than (0.05), and this leads us to accept the null hypothesis that there is homogeneity between the two samples.From the researcher's point of view, All the participants in the two groups (study and control) are homogenous due to they were from the same hospital and the same units in which they work. And the average age is that most of them are new graduates who have more than one year of service in the job and in the neonatal care units according to the criteria of the study sample. But regarding to the gender of the participants, the majority of them are males given the night shift system in health institutions and the greater reliance on them in that.This study agree with others study in Iraq [10-15].In these study and according to the table (2) shows the results for main parts in three tests (pre-test ,post-test1 and post-test2), in terms that a deference's between each part as a(poor) for pre-test and (good) for (post-test1 and post-test2)with slightly different. Were a highly score for Characteristics of newborn baby variable in (pre-test =73.34% poor) , (post-test1=83.34% Good) and (post-test2=80 Good). Neonatal jaundice variable (pre-test =63.34% poor) , (post-test1=96.66% Good) and (post-test2=90 Good). Phototherapy variable (pre-test =66.67% poor) , (post-test1=100% Good) and (post-test2=93.34Good) and Nursing care of a neonate treated with phototherapy variable (pre-test =76.66% poor) , (post-test1=90% Good) and (post-test2=86.66Good).

This study supported with other study [16-26] who found same results.The results for study group are shown in the table (3) that: There are significant differences between the two samples (Pre-test) and (Post-test1) in terms of the probability value (P-value) accompanying the (Friedman's test), which amounted to (0.000), which is less than (0.05), as the mean rank was for a sample (Pre-test = 1), which is less than the average ranks for a sample (Post-test1 = 2.90). There are significant differences between the (Pre-test) and (Post-test2) samples, in terms of the probability value (P-value) accompanying the Friedman's test, which amounted to (.0000), which is less than (0.05), as the mean rank reached) for a sample (Pre-test = 1), which is less than the average ranks for a sample (Post-test2 = 2.10). There are significant differences between the two samples (Post1 test) and (Post2 test) in terms of the probability value (P-value) accompanying the (Friedman's test), which amounted to (0.006), which is less than

(0.05), as the mean rank for a sample reached (Post1 test = 2.90), while the average score for a sample (Post2 test = 2.10).

CONCLUSION

This study concluded that the nurses' performance has been improved, relative to regarding all aspects of nurses' performance about phototherapy neonatal includes: Characteristics of new born baby, neonatal jaundice, phototherapy and Nursing care for neonatal baby treated on phototherapy, as result of the program implementation.

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