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ORIGINAL RESEARCH

Effectiveness of an Instructional Program on Nurses' Practices toward Change Position Effect of Preterm Babies with Respiratory Disorders

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ABSTRACT

Background: Positioning is a crucial aspect of developmental care because it keeps the infant flexible, aligned, confined, and comfortable. It is a simple therapeutic procedure that is effective and safe for preterm infants.

Objectives: To determine the effectiveness of an instructional program on nurses' practices toward change position, and to find out the relationships between the effectiveness of instruction program and demographic characteristics of nurses.

Methodology: A quasi-experimental study design was initiated from 20 December 2022 to 22 May 2023 at Maysan hospital for child and birth, in Al-Amarah city. A non-probability "convenience" sample was selected and consisting of 50 Nurses. The data was obtained by observation utilizing a constructive practices checklist. Descriptive and inferential statistics were used to analyze the data by using SPSS (version 26.0).

Results: Findings reveal that nurses in the study group are showing fair level of practices during the pre-test time (76%) while they are showing good level of practices during the post-test 1 (88%) and post-test 2 (84%) that indicate the significant changes in level of practices among nurses after applying the program.

Conclusion: The Instructional program had a positive effect on the practices of neonatal intensive care unit nurses. There were significant differences in the study group's practices scores between the pre-test and post-test. There was association between nurses' practices and their age.

Recommendations: Providing Neonatal intensive care unit nurses with posters, leaflets, and books so they can learn enough about the right and safe position for preterm babies. Standardized checklists should be made available in NICU.

Keywords: Instruction, Nurses, practices, position, preterm, respiratory disorders.

INTRODUCTION

Prematurity is one of neonatology's largest challenges that reported to range from 5% to 18% globally and affect over 15 million newborns annually (1). Preterm infants often have cardiorespiratory instability, which can lead to episodes of apnea, bradycardia, and oxygen desaturation (2). Most of these babies need respiratory, cardiovascular, thermal support because their organs are not yet

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physiologically mature enough to handle these basic functions on their own [3]. Positioning is one of the most important elements of developmental care that helps maintain the infant flexible, aligned, confined, and comfortable; to reduce the number of days spent on ventilation; to shorten hospital stays; to encourage self-regulation and sleep; and to lessen pain responses [4]. It is an easy-to-use therapy technique that is effective and secure right away [5].

Compared to invasive procedures, body positioning is a simple, useful, and successful intervention that can improve breathing rate and promote lung function. Not just the posture alone, but also a "change" in body position causes a variation in the function of the lungs [6,7]. Positioning improves gas exchange and reduces pathology by leveraging the operational effect of gravity on cardiopulmonary and cardiovascular function. Several newborn with problems breathing mechanically adopt a posture that helps them breathe [8]. In preterm newborns, positioning plays an important role for pulmonary, digestive, and autonomic systems [9].

To increase oxygenation and minimize the need for supplementary oxygen and mechanical ventilation, it is crucial to arrange newborns in proper body alignment and to change their body posture [10]. Preterm infants should be positioned in supine, prone, side-lying, and head-up tilted positions [6]. Respiratory treatment includes proper body placement. It might not seem like a good idea to change postures frequently. But this straightforward approach typically avoids the need for more time-consuming, difficult, or demanding methods [8]. Positions of the body are taken into consideration as a key element for ventilation and tissue oxygenation in preterm infants receiving respiratory support. The preterm body position must therefore be changed multiple times every two to three hours [6,11].

Neonatal intensive care unit nurses are the healthcare professionals who interact with preterm infants for the longest periods of time while administering therapy and nursing care to them during their hospitalization [12]. In addition, nurses play a vital role in world health. Critical care Nursing provide complete care and assistance to infants admitted to NICU. In hospitals, the productivity and quality of treatment are directly linked to the Practice of healthcare workers, especially professional nurses in critical care units. For new nurses, NICU is one of the most difficult and critical places to work in a hospital [13]. So, this study conducted to improve nurses' practices toward change position effect for preterm with respiratory disorders.

AIMS OF THE STUDY

This study aims to determine the effectiveness of an instructional program on nurses' practices toward change position, and to find out the relationships between the effectiveness of instruction program and demographic characteristics of nurses.

METHODOLOGY

Study Design: A quasi-experimental study design is carried out to assess effectiveness of an instructional

program on nurse's practices about change position effect of preterm with respiratory disorders. The period of the study was initiated from 20 December 2022 to 22 May 2023.

Ethical Considerations: The participants were fully acquainted of the current study and its aims and then a voluntary verbal consent was obtained in order to participate in the study. Besides,

the confidentiality of information obtained from nurses has been taken into account. Also, ethical approval was obtained from ethical committee of research in the Faculty of Nursing/University of Baghdad regarding confidentiality and anonymity of participants.

Setting of the Study: The study was conducted at Maysan Hospital for Child and Birth in Al-Amarah City.

Study Sample: A non-probability "convenience" sample was selected from Maysan Hospital for Child and Birth in Al-Amarah City had been consisting of 50 Nurses. The size of sample is 50 nurses divided into two groups each one consisting of 25 nurses as the study group and 25 nurses as the control group. The study group was exposed to an instructional program while the control group was not exposed to the program.

Study instrument: Data collection was gathered using a questionnaire format which consists of two parts, including

Part Ⅰ: Demographic data

This part consists of the demographic data, which comprises different items that include general information about nurses such as age, educational level, years of experience, and years of practices in NICU.

Part Ⅱ: nurse's practices

This part relates to nurse's practices and consists of (16 items) an observation checklist containing a 3-point Likert scale (always score 3, sometimes score 2, never score1).

Data Collection Methods: The data was collected by respondents to a constructive practices checklist that was used for observation during the morning, pre-night, and night shifts. The nurses were tested on their practices. Every nurse had roughly 20 to 25 minutes to observe.

Data Analysis: The data were analyzed and interpreted through use of the application of Statistical Package for Social Sciences SPSS (version 26.0). Descriptive Statistical Data Analysis (frequency, percentage, mean of score and standard deviation) and Inferential Statistical Data Analysis (Cronbach Alpha, Spearman's rank correlation coefficient, Point Biserial Correlation and Repeated Measure ANOVA) where used to analysis data.

RESULTS

The descriptive analysis in table 1 reveals that average age of nurses in the study group is 26.4±4 years and high percentage refers to age group of "20-less than 25 years" among 44% of them. The average age for nurses in the control group refers to 24±2.6 year and 52% of them are seen with age group of "20-less than 25" years. The gender refers that 88%

of nurses in the study group and 88% of nurses in the control group are female nurses. Regarding level of education, the highest percentage among nurses in the study group refers that 40% of them are graduated from "nursing secondary school", while among the nurses in the control group, the highest percentage refers that 48% of nurses are graduated with "diploma degree" in nursing. The average years of experience refers to 5±4 years among nurses in the study group and 44% of them associated with 7-less than 10 years of experience, the nurses in the control group is seen with 1-less than 4 years of experience with average years of experience is 3±1.5 year. Regarding years of practices in neonate units, 80% of nurses in the study group and 92% of nurses in the control group have 1-less than 5 years of practices; the average refers to 3±2.5 year for those in the study group and 2±1.5 years for those in the control group.

In table 2 displays the overall assessment of nurses' practices; the findings reveals that nurses in the study group are showing fair level of practices during the pre-test time (76%, M±SD= 62.76 ± 9.148) while they are showing good level of practices during the post-test 1 (88%, M±SD= 86.68 ± 7.381) and post-test 2 (84%, M±SD= 83.44 ± 2.841) that indicate the significant changes in level of practices among nurses after applying the program. The nurses in the control group are showing poor level of practices during the pre-test time (60%, M±SD= 55.16 ± 4.469) while they show fair level of practices during post-test 1 (76%, M±SD= 57.40 ± 5.370) and post-test 2 (56%, M±SD= 56.40 ± 5.993) that indicate no significant change in nurses' practices.

The table 3 shows that there is high significant relationship among nurses' practices in the study group with regard to their age as revealed by significant correlation at p-value= .004. There is no significant association is reported among nurses' practices with regard to their gender, level of education, years of experience, and years of practices.

DISCUSSION:

The descriptive analysis in table 1 reveals that high percentage of nurses in study group refers to age "20-less than 25 years" among 44% of them while in the control group 52% of them are seen with age group of "20-less than 25" years. This finding similar to studies conducted by [14,15]. But, in contrast with [16] which conducted in Neonatal Intensive Care Unit in Teaching Hospitals Baghdad City. The researcher explained that young age of nurses due to increase numbers of new employments in nursing staff.

Regarding gender of nurses, most of nurses (88%) in the study and control group are female. study reported that the distribution of the gender variable is no different between the two groups. This result agrees with study done by [13, 17]. Since female nurses have more passionate and intimate emotions about newborns than male nurses have, they are in reality more in demand in pediatric hospitals.

Concerning the level of education, the highest percentage among nurses in the study group refers that 40% of them are graduated from "nursing secondary school", while among the nurses in the control group, the highest percentage refers that 48% of nurses are graduated with "diploma degree" in nursing. This result in line with studies [16, 18]. In opposite with study in Korea [12] found that majority of participant hold bachelor's degree in nursing. The researcher explained that this finding could be due to increase number of nurses graduated from secondary school compared with colleges of nursing in governorate.

Regarding to nurses experience the average years of experience among the nurses in the study group is 5±4 years, and 44% of them are linked with 7–less than 10 years of experience. This finding is consistent with [19]. In contrast with study conducted in Alexandria city which shown that most nurses in study had 15 years of experience and more [20]. The researcher suggest that the few years of experience come due to increasing new appointments for nursing staff.

Regarding years of practices in neonate units, 80% of nurses in the study group and 92% of nurses in the control group have 1-less than 5 years of practices; the average refers to 3±2.5 year for those in the study group and 2±1.5 years for those in the control group. These findings in line with study by [16, 21, and 22]. The researcher explained that this finding could be due to stressful and tiring work in NICU, nurses often change their department every period.

In the present study, overall assessment of nurses' practices toward "change position effect of preterm with respiratory disorders"; showed that the findings among the study group reveal that nurses are showing fair level of practices during pre-test time while they show good level of knowledge during the post-test 1 time and post-test 2 time. Among the nurses in the control group, they show fair level of practices during the three times of test: pre-test, post-test 1, and post-test 2. This finding in consist with studies [18,23]. Shown that nurses have fair level before intervention while they have good level after implementation. The researcher explains that this improvement in nurses' practices of study group could be attributed to the effectiveness of the intervention, which included an instructional program aimed at increasing the nurses' practices toward change position effect of preterm with respiratory disorders. The researcher may also have considered the possibility that the control group did not receive the same intervention, which may have contributed to the lack of improvement in practices levels.

Regarding to association between nurses' practices in study group and their demographic characteristics study showed that there is significant association between nurses' practices and their age which disagree with study [21, 24]. while there is no significant relationship between nurses' practices and other sociodemographic characteristics like gender, level of education, years of experience and years of practices in NICU [23,25].

CONCLUSION:

The overall assessment of nurses' practices reveals that nurses in the study group are showing fair levels of practices during the pre-test time while they are showing good level of practices during the post-test 1 and post-test 2 which indicate the significant changes in nurses' level of practices and effectiveness of instructional program. There is significant association between nurses' practices and their age while there is non-significant relationship with nurses' practices and gender, level of education, years of experience and years practice in NICU.

RECOMMENDATIONS:

Training programs for in-service nurses are required to improve nurses' understanding of preterm positioning and safe sleep practices. As well as providing NICU nurses with posters, leaflets, and books so they can learn enough about the right and safe position for preterm babies, to aid the nurses in NICUs in placing neonates in the proper positions for sleep, standardized checklists should be made available.

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TABLES AND FIGURES

Table (1): Distribution of the Nurses according to their demographic Characteristics

No.	Characteristics		Study group		Control group	
			f	%	f	%
1	**Age (Years)**	20 – less than 25	11	44	13	**52**
		25 – less than 30	9	36	11	**44**
		30 – less than 35	4	16	1	**4**
		35 – less than 40	1	4	0	**0**
		Total	***25***	***100***	***25***	***100***
		M±SD=	***26.4±4***		***24±2.6***	
2	**Gender**	Male	3	12	3	**12**
		Female	22	88	22	**88**
		Total	***25***	***100***	***25***	***100***
3	**Level of education in nursing**	Secondary school	10	40	10	**40**
		Diploma	9	36	12	**48**
		Bachelor	6	24	3	**12**
		Total	***25***	***100***	***25***	***100***
4	**Years of experience**	1 – less than 4	10	40	16	**64**
		4 – less than 7	11	44	7	**28**
		7 – less than 10	1	4	2	**8**
		10 or more	3	12	0	**0**
		Total	***25***	***100***	***25***	***100***
		M±SD=	***5±4***		***3±1.5***	
5	**Years of practice in neonate unit**	1 – less than 5	20	80	23	**92**
		5 and more	5	20	2	**8**
		Total	***25***	***100***	***25***	***100***
		M±SD=	***3±2.5***		***2±1.5***	

No: Number, f: Frequency, %: Percentage.

Table (2): Overall Assessment of Nurses' Practices about Change Position Effect for Preterm with Respiratory Disorders among Study and Control Group

Levels of practices	Study Group (N= 25)											
	Pre-test				Post-test 1				Post-test 2			
	f	%	M	S.D	f	%	M	S.D	f	%	M	S.D
Poor	4	16	62.76	9.148	0	0	86.68	7.381	0	0	83.44	2.81
Fair	19	76			3	12			4	16		
Good	2	8			22	88			21	84		
Total	*25*	*100*			*25*	*100*			*25*	*100*		
Levels of practices	**Control Group (N=25)**											
	Pre-test				**Post-test 1**				**Post-test 2**			
	f	%	M	S.D	f	%	M	S.D	f	%	M	S.D
Poor	15	60	55.16	4.469	6	24	57.40	5.370	11	44	56.40	5.993
Fair	10	40			19	76			14	56		
Good	0	0			0	0			0	0		
Total	*25*	*100*			*25*	*100*			*25*	*100*		

f: Frequency, %: Percentage, M: Mean of total score, SD Standard deviation of total score, Poor= 33 – 55, Fair= 55.1 – 77, Good= 77.1 – 99.

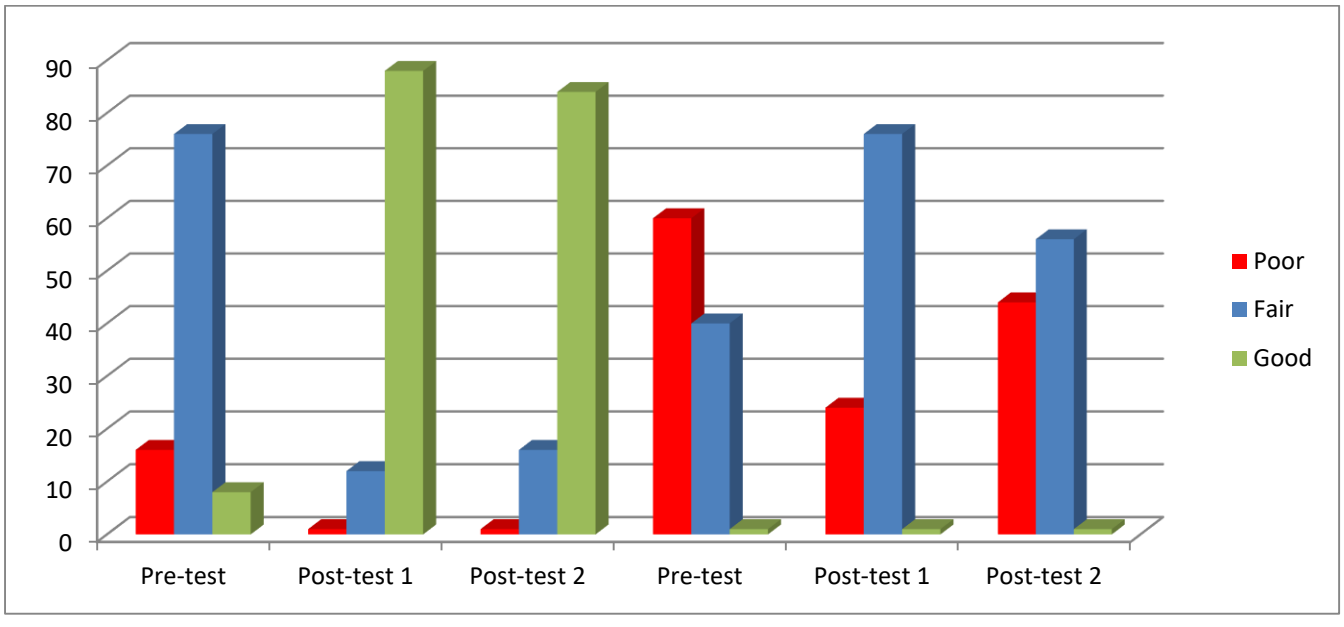

Figure (1): Overall Assessment of Nurses' Practices about Change Position Effect for Preterm with Respiratory Disorders among Study and Control Group

Table (3): Associations among Nurses' Practices with their demographic Characteristics among the Study Group (Post-test).

Variables		Practices				Association
		Poor	Fair	Good	Total	
Age (year)	20 – less than 25	0	2	9	11	r_S = .555
	25 – less than 30	0	1	8	9	P-value= .004
	30 – less than 35	0	0	4	4	Sig= H.S
	35 – less than 40	0	0	1	1	
	Total	**0**	**3**	**22**	**25**	
Gender	Male	0	0	3	3	r_{pb} = .205
	Female	0	3	19	22	P-value= .325
	Total	**0**	**3**	**22**	**25**	Sig= N.S
Level of education in nursing	Secondary school	0	2	8	10	r_S = .249
	Diploma	0	1	8	9	P-value= .231
	Bachelor	0	0	6	6	Sig= N.S
	Total	**0**	**3**	**22**	**25**	
Years of experience	1 – less than 4	0	1	9	10	r_S = .280
	4 – less than 7	0	2	9	11	P-value= .176
	7 – less than 10	0	0	1	1	Sig= N.S
	10 or more	0	0	3	3	
	Total	**0**	**3**	**22**	**25**	
Years of practice in neonate unit	1 – less than 5	0	2	18	20	r_{pb} = .014
	5 and more	0	1	4	5	P-value= .947
	Total	**0**	**3**	**22**	**25**	Sig= N.S

rS = Spearman correlation coefficient, rpb= point biserial correlation coefficient, P= Probability, Sig= Significance, N.S= Not significant, S= Significant, H.S= High significant.