

Effectiveness of an Educational Program on Nurses' Knowledge and Practices Concerning Nursing Care for Critically – Ill Patients at Critical Care Units in Misan Governorate Hospitals

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Abstract

Background: Nursing care for critically ill patients includes the implementation of basic care tasks intended to enable patients to perform daily life activities. Critical care nursing provide specialized care to patients experiencing a life threatening or potentially life threatening illness. This care is complex, intensive and continuous.

Objective: The study aim to evaluate the nurses' knowledge and practices concerning nursing care for critically – ill patients at critical care units, and to construction of educational program.

Methodology: A quasi experimental design has been carried out in intensive care unit at Shaheed Al - Sadder teaching hospital and Al Zahrawi surgical hospital started from the 26th of June 2018 to the 30th of October 2019. Select purposive sample comprised of 60 nurses is divided into two groups equally, study group were exposed to the nursing educational program, and control group.

Results: The study reveal that the majority of nurses had moderate level knowledge and practices in pre test towards nursing care for critically- ill patients for both groups (study and control), total mean are with regard to knowledge (mean of study group = 0.45 and control group) = 0.42), and in practice (mean of study = 1.86 and control = 1.85). while for post-test presented improve in study group were (mean of the study = 0.83 and control = 0.42) with regard to knowledge, (Study mean = 2.62 and control group = 1.84) for practices.

Keyword : Effectiveness; Education Program; Nurse; Knowledge; Practice; Nursing Care; Critically – ill Patients; Critical Care Unit.

Introduction

The nursing care for critically ill patients includes the implementation of basic care tasks intended to enable patients to perform daily life activities as well as advanced care tasks that support health recovery or the maintenance of clinical conditions. Patients who are hospitalized in critical care settings require nursing care to meet their basic needs. These interventions are integrated as indicators of patient outcomes and quality of care in critical care units ¹. The care that critically ill patients received at the end of life in critical care units is highly dependent on critical care nurse's knowledge

and skills ². Attributes required to practice include advanced knowledge, critical thinking, advanced problem solving, leadership, advocacy and judgment ³. The most of patients in the critical care unit are usually on mechanical ventilation and are not oriented properly or they are comatose. Therefore, providing care to patients in intensive care units requires an empowered nursing workforce who is equipped with contemporary knowledge, vigilance and expertise ⁴. A Critical Care Nurse is one of the roles of a broader group of nurses called Clinical Specialists. Also called Critical Care Registered Nurse and Intensive care nurses, the exact term used will depend on area of specialization and

training. Although the scope of practice for a CCN varies by state as defined by the state board of nursing, a critical care nurse most commonly provides evidence based nursing care to deliver advanced care in intensive care, critical care and coronary care units ⁵. The nurses should understand that the unique physiological, psychological, and emotional problems that arise in critically ill patients require a delicate balance between the scientific, technical, and humane components of nursing care ⁶. Within this context of intensive care, the nursing contribution involves meticulous observation and skilled intervention, the provision of basic hygiene, nutrition and prevention of harm, as well as the provision of emotional and psychological support to both the patient and their families ⁷.

Methodology

A quasi- experimental design was used to achieve the aims of this study, with the application of pre and post-test approach for both study and control groups. This study applied in Misan governorate hospitals in critical care units at Shaheed Al - Sadder teaching hospital and Al Zahrawi surgical hospital and started from the 29th of June 2018 to the 30th of October 2019. A non-probability (purposive) sample consisted of (60) nurses have been selected to obtain representative and accurate data. The size of sample was divided into two groups randomly, each one consisted of (30) nurses as the study group was exposed to an educational program while the control group was not exposed. The study instrument was adopted and developed by the researcher to evaluate the nurses' knowledge and practices concerning nursing care for critically – ill patients, it consisted of three parts: First part. Self-administered questionnaire sheet related to socio-demographic characteristics of the nurses consisted of (7) variables, which included name

of hospital, age, gender, achievement education, years of experience in nursing , and years of experience in the critical care unit and training sessions. Second part: questionnaire sheet is assessment nurses' knowledge, it was composed of (43) questions in four domains(general information about intensive care nursing consisted of (4) items, Standard measurements for infection control in the critical care units consisted of (6) items, nursing care for critically – ill patients undergoing mechanical ventilation consisted of (20) items, and medications and solutions used in intensive care unit consisted of (13) items). Each question comprised of (4) alternatives for multiple choice. The questions were scored as correct (1) point and incorrect (0) point. Scores of response are categorized according to the following : Poor knowledge = (> 0.33): 1; Fair knowledge = ($0.33-0.66$):2; Good knowledge = ($0.67-1.00$):3.

Third part: questionnaire sheet checklist to evaluate nurses' was composed of (74) items divided into three domains (one domain:(7) items nurses' practices related ethical and legal considerations in the intensive care unit, two domain: (10) items related to the Standard precautions for infection control in the critical care unit, and three domain:(57) items related to nursing care for patients undergoing mechanical ventilation is in accordance with body systems and divided in eight subdomains nursing care for the following :(respiratory system (18) items, cardiovascular system (6) items, nervous system (5) items, digestive system (5) items, urinary system (6) items, skin and avoid the occurrence of bed ulcers(7) items, musculoskeletal system (4) items, and Psychosocial (6) items). These items were rated according to the Likers' scale; always (3) ; sometimes (2); and never (1).

Results

Table (1): Overall Evaluation of Nurses' Knowledge Concerning Nursing Care For Critically – ill Patients in the Study and Control Group at Pre and Post Test

Periods	Levels of Evaluation	Study Group		Control Group	
		Freq.	Percent	Freq.	Percent
Pre-test for Nurses' Knowledge	Poor (0 - 0.33) : 1	4	13.3	6	20.0
	Fair (0.34 – 0.67) : 2	26	86.7	24	80.0
	Good (0.68 – 1.00) : 3	0	0	0	0
	Total	30	100.0	30	100.0
	$\bar{x} \pm S.D.$	0.45 $\pm$ 0.081		0.42 $\pm$ 0.074	
Post-test for Nurses' Knowledge	Poor (0 - 0.33) : 1	0	0	7	23.3
	Fair (0.34 – 0.67) : 2	0	0	23	76.7
	Good (0.68 – 1.00) : 3	30	100.0	0	0
	Total	30	100.0	30	100.0
	$\bar{x} \pm S.D.$	0.83 $\pm$ 0.066		0.42 $\pm$ 0.079	

$\bar{x} \pm S.D.$ $\bar{x} \pm S.D.$ = Arithmetic Mean ($\bar{x}$) and Std. Dev. (S.D.) .

Table (2): Overall Evaluation of Nurses' Practices Concerning Nursing Care For Critically – ill Patients in the Study and Control Group at Pre and Post Test

Periods	Levels of Evaluation	Study Group		Control Group	
		Freq.	Percent	Freq.	Percent
Pre-test for Nurses' Practices	Inadequate (1 - 1.66) : 1	0	0.0	0	0.0
	Fair (1.67 – 2.33) : 2	30	100.0	30	100.0
	Adequate (2.34 – 3.00) : 3	0	0.0	0	0.0
	Total	30	100.0	30	100.0
	$\bar{x} \pm S.D.$	1.86 $\pm$ 0.082		1.85 $\pm$ 0.082	
Post-test for Nurses' Practices	Inadequate (1 - 1.66) : 1	0	0.0	0	0.0
	Fair (1.67 – 2.33) : 2	1	3.3	30	100.0
	Adequate (2.34 – 3.00) : 3	29	96.7	0	0
	Total	30	100.0	30	100.0
	$\bar{x} \pm S.D.$	2.62 $\pm$ 0.185		1.84 $\pm$ 0.073	

$\bar{x} \pm S.D.$ $\bar{x} \pm S.D.$ = Arithmetic Mean ($\bar{x}$) and Std. Dev. (S.D.) .

Table (3): Distribution of Nurses' Responses and comparisons significant Between Study and Control Groups at (Pre and Post-Test) Related to Main Domains of the Nurses' Knowledge Concerning Nursing Care For Critically – ill Patients

Main Domains Related to Nurses' Knowledge in Intensive Care units	Groups Response	Study Group							Control Group							C.S. (*) Pre X Pre (C X S)	(*) C.S.. Post X Post (C X S)
		Pre-Test			Post-Test			C.S.	Pre-Test			Post-Test			C.S.		
		No.	%	M.S.	No.	%	M.S.		No.	%	M.S.	No.	%	M.S.			
One : General Information About Intensive Care Nursing	Correct	56	46.7	0.47F	102	85.0	0.85G	P= 0.000HS	55	45.8	0.46F	61	50.8	0.51F	P=0.441 NS	P=0.898 NS	P=0.000 HS
	Incorrect	64	53.3		18	15.0			65	54.2		59	49.2				
Two: Standard Measurements for Infection Control in the Critical Care Unit	Correct	80	44.4	0.44F	168	93.3	0.93G	P= 0.000HS	104	57.8	0.58F	108	60.0	0.60F	P=0.667NS	P=0.111 NS	P=0.000 HS
	Incorrect	100	55.6		12	6.7			76	42.2		72	40.0				
Three: Nursing care for critically – ill patients undergoing Mechanical Ventilation	Correct	258	43.0	0.43F	486	81.0	0.81G	P=0.000HS	228	38.0	0.38F	229	38.2	0.38F	P=0.951NS	P=0.177 NS	P=0.000 HS
	Incorrect	342	57.0		114	19.0			372	62.0		371	61.8				
Four: Medications and solutions used in the Critical Care Unit	Correct	180	46.2	0.46F	317	81.3	0.81G	P=0.000HS	149	38.2	0.38F	142	36.4	0.36F	P=0.595NS	P=0.055 NS	P=0.000 HS
	Incorrect	210	53.8		73	18.7			241	61.8		248	63.6				
	Correct	574	44.5	0.45F	1073	83.2	0.83 G	P=0.000 HS	536	41.6	0.42F	540	41.9	0.42F	P=0.868NS	P=0.131 NS	P=0.000 HS
	Incorrect	716	55.5		217	16.8			754	58.4		750	58.1				

F: Frequencies, %: Percentages; M.S.: Mean of Score; C.S.: Comparison Significant, P: Probabiliy value; Level of Assessment= Poor (0 - 0.33) : 1; Fair (0.34 – 0.67) : 2; Good (0.68 – 1.00) : 3; N.S: Non Significant at (P> 0.05); HS: High Significant at (P< 0.01).

Table (4): Distribution of Descriptive Statistics of the studied groups according to (Main Domains Related to Nurses' Practices for Nursing Care) with comparisons significant Between Pre-Test and Post-Tests in Both Groups

Main Domains Related to Nurses' Practices in Intensive Care Nursing	Groups Response	Study Group							Control Group							C.S. (*) Pre X Pre (C X S)	C.S. (*) Post X Post (C X S)
		Pre-Test			Post-Test			C.S.	Pre-Test			Post-Test			C.S.		
		No.	%	M.S.	No.	%	M.S.		No.	%	M.S.	No.	%	M.S.			
One: Ethical and legal considerations in the ICU	Always	16	7.6	1.89 F	188	89.5	2.89 A	P=0.000 HS	14	6.7	1.84 F	13	6.2	1.85 F	P=0.806 NS	P=0.294 NS	P=0.000 HS
	Sometimes	155	73.8		20	9.5			148	70.5		152	72.4				
	Never	39	18.6		2	1.0			48	22.8		45	21.4				
Two: Standard precautions for infection control in the CCU	Always	18	6.0	1.85 F	192	64.0	2.57 A	P=0.000 HS	15	5.0	1.81 F	12	4.0	1.82 F	P=0.706 NS	P=0.329 NS	P=0.000 HS
	Sometimes	219	73.0		87	29.0			213	71.0		223	74.3				
	Never	63	21.0		21	7.0			72	24.0		65	21.7				
Three: Nursing care for patients undergoing Ventilator is in accordance body systems	Always	127	7.4	1.84 F	1141	66.7	2.60 A	P=0.000 HS	171	10.0	1.85 F	141	8.2	1.84 F	P=0.503 NS	P=0.803 NS	P=0.000 HS
	Sometimes	1189	69.6		450	26.3			1115	65.2		1150	67.3				
	Never	394	23.0		119	7.0			424	24.8		419	24.5				
Total of Overall Domains Related to Nurses' Practice	Always	161	7.3	1.86 F	1521	68.5	2.62 A	P=0.000 HS	200	9.0	1.85 F	166	7.5	1.84 F	P=0.507 NS	P=0.641 NS	P=0.000 HS
	Sometimes	1563	70.4		557	25.1			1476	66.5		1525	68.7				
	Never	496	22.3		142	6.4			544	24.5		541	23.8				

F: Frequencies, %: Percentages, **M.S.:** Mean of Score; **Level of Evaluation = Inadequate (1 - 1.66) : 1; Fair (1.67 – 2.33) : 2; Adequate (2.34 – 3.00) : 3; C.S.:** Comparison Significant; **NS:** Non Significant at ($P > 0.05$); **S:** Significant at ($P < 0.05$); **HS:** High Significant at ($P < 0.01$). **C X S:** Testing coincidence between Control and Study groups.

Table (5): Association Between Effectiveness of an Educational Program on Nurses' Knowledge with Their Demographic Variables.

Nurses' Knowledge Variables	Pre- Test				Post –Test			
	Chi-Square	d.f	p-value	Sig.	Chi- Square	d.f	p-value	Sig.
Age	1.319	4	0.858	NS	1.348	4	0.853	NS
Gender	0.009	1	0.925	NS	0.069	1	0.793	NS
Achievement Education	5.009	2	0.083	NS	19.260	2	0.000	HS
Experiences Years in Nursing Field	0.851	3	0.837	NS	5.600	3	0.133	NS
Experiences Years in ICU	2.190	4	0.701	NS	11.456	4	0.022	S
Participation in Training Courses	4.039	5	0.544	NS	2.012	5	0.848	NS

d.f = degree of freedom, **P** = probability value, **Sig.**= Significant, **S**= Significant at ($P < 0.05$), **HS**= High

Significant at ($P < 0.01$), NS= Non Significant at ($P > 0.05$).

Regarding the nurses' practices regarding eye care in critically ill patients, it was found that nurses' practices scores were unsatisfactory¹⁵. The nurses' practices regarding body fluid balance assessment through observational checklist it revealed that percentage of satisfactory practice improved post structured educational program¹⁶. Finding of table-5- reveals that all nurses in both groups at pre-test period had same evaluation level for the nurses' practices, and also in the post test to the control group are accounted mean score (1.86); (1.85) & (1.84) respectively were have fair level, while post test to the study group is accounted mean score (2.62). Also results is showed, there are high significant differences(between pre and post tests of study group, and as well as post- test between study and control group) in all domains for nurses' knowledge related to nursing care for critically –ill patients. while shows that there are no significant differences between (pre and post-tests of control group, and pre-test between study and control group).. The study showed that, there was highly statistically significant relation between total nurses' knowledge score and practices level regarding pre and post program implementation, this means that when knowledge increased, the competent nursing practice increased¹⁷.

Conclusions

Illustrated from this study not all intensive care unit nurses were trained adequately on the nursing care guide in the intensive care unit approved by the Iraqi Ministry of Health which was prepared by Hammam Mithaq, (2017). The findings of the present study show that nurses' knowledge and practices were in moderate level at pre test regarding the nursing care for critically – ill patients at critical care units in Misan governorate hospitals.

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Conflict of Interest: None to declare.

Ethical Clearance: All experimental protocols were approved under the College of Nursing and all experiments were carried out in accordance with

approved guidelines.

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