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ORIGINAL RESEARCH

Effectiveness of Competency-Based Educational Program on Quality of Care among Post-Graduate Nurses

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ABSTRACT

Background: Nursing competencies significantly impact the quality of nursing care. This care can be improved by maintaining nursing proficiency via a competency-based nursing educational program.

Objectives: To determine the effectiveness of the competency-based educational program on quality of care.

Methodology: The quasi-experimental design (pre-posttest) was used in the current study to achieve the early stated objectives. The study was carried out from the period of 4th September 2023 to 3rd April 2024. A (Purposive Sample) consisted of 80 nurses. Data collected through using of a well-designed questionnaire consists of two parts: I: socio-demographic characteristics: Which consisted of (8) items. II: The Quality Nursing Care Scale (QNCS-M) which consisted of (36) items.

Results: The results of the present study indicate that there is a significant difference in the pre- and post-test periods regarding quality of care with the quality of care with the final mean of the nurses' overall quality of care for the study group in the posttest (mean = 2.56) compared to (mean = 1.54) in the pretest for the same group.

Conclusion: The results of the data analysis show that the competency education program for nurses was implemented and that the evaluation of the program in two phases (pretest and posttest), it had a positive impact on the quality of care provided by the study group.

Recommendations: periodic assessment of the healthcare provider's abilities to provide, in addition to appropriate support and motivation to encourage healthcare providers to engage in activities that improve the quality of care from persons in authority.

Keywords: effectiveness, competency-based education, quality of care, nursing care, post-graduate nurses.

INTRODUCTION

Around the world, 50 percent of the health workforce comprises nurses (Dall'Ora et al., 2022). Nurses comprise the greatest percentage of all health workers, with over 28 million globally (Baumann and Crea-Arsenio, 2023).

As essential partners of the healthcare delivery team, nurses are central to the supply and coordination of treatment, avoiding undesirable occurrences, and the enhancing patient outcomes and health service productivity (Oldland et al., 2020; Mohammad & Mustafa, 2022).

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Nurses split up their several shifts of unceasing twenty-four-hour patient care. Conducting assessments, establishing a nursing diagnosis, and creating nursing intervention plans, are included in inpatient care (Al-Hchaim and Hamza, 2016; Asmirajanti et al., 2019). Therefore, the actions of the nurse can have an impact on the patient's experience, behavior, or clinical state (Evangelou et al., 2021). Quality nursing care primarily consists of meeting needs and expectations by adhering to relevant standards and criteria and providing careful care throughout the nursing process. Meeting human needs via compassion, understanding, and courteous interactions is known as quality of nursing care (Ahmad et al., 2023).

Quality healthcare must be delivered to both people and society, as stated by WHO (Nyelisani et al., 2023). Quality nursing care is an outcome of competencies, communication clearly, and proper administrative procedures. Achieving the best outcomes and health processes is what defines significant nursing care. The cornerstone of effective care is to achieve a balance between the risks and benefits of treatment (Bastani et al., 2022).

The presence of competent healthcare providers is necessary for the delivery of high-quality care, as well as nursing quality management is at the core of quality healthcare (Weldetsadik et al., 2020). To keep up with the increasing demands of patients, the profession of nursing is always changing and gaining new skills. A person who has acquired the necessary qualifications throughout their educational program and who has the legal authorization to practice this profession can perform the duties required. Nurses can take part in a diversity of training programs besides specialized courses to increase their competency (Wasik, 2020; Kareem et al.,2022).

The safety and quality of nursing care can only be improved by the right practice, basic knowledge, and also optimistic outlook (Zhang et al., 2021). To provide safe and high-quality nursing care, competent nurses are essential (Zaitoun et al., 2023). Programs for competency-based education (CBE) are intended to provide nurses with the information, abilities, and mindset they need to handle situations that become more complicated (Charette et al., 2019; Al-Abedi & Mansour, 2022). Developing clearly-recognized competencies structuring the curriculum for achieving those competencies, and aligning the assessment procedure to the competencies are the hallmarks of competency-based education.

Competency-based education is the method of educational delivery that arranges knowledge and skills based on the learner's "competency," or what they know and can achieve. The main emphasis is on learning objectives instead of the instruction time (Malonda, 2022). Competency-based education is an outcomes-based strategy that prioritizes the planning, carrying out, evaluating, and assessing of educational programs over instruction. The core principle of competency-based education is that before leaving the learning environment, the learner will have proven that they have acquired the key information, abilities, and attitudes demanded for the specified educational process (Hodges et al., 2019).

Competency-based education does not demand traditional classroom settings; learning can also happen on the job site, during an internship, job shadowing, online, blended, or distance learning, among other situations. Learners need to show mastery of a skill or competency to receive credit and/or advance to the next level (Sistermans, 2020). Healthcare workers frequently show deficiencies in performance, therefore building an educational framework that can effectively close the gap between the knowledge and practice has received attention. For that reason, the most operational education is a competency-based educational program (Imanipour et al., 2022).

AIMS OF THE STUDY

The study aimed to determine the effectiveness of the competency-based educational program on quality of care at pre-test and post-test.

METHODOLOGY

Design of the study:

The quasi-experimental design (pre-posttest) was used in the current study to determine the effectiveness of a competency-based educational program on quality of care, the study was carried out during the period of 4th September 2023 to 3rd April 2024.

Ethical consideration:

The researcher received permission from Kufa University's College of Medicine Ethics Committee. The participant data should only be used for this study, according to the researcher. Research participants were included once the nurses gave their written approval to be involved in the study.

The Setting of the Study:

The study was conducted at Al-Najaf City/ Al-Najaf Al-Ashraf Health Directorate/ Al-Sadder Medical City, Al-Najaf Center for Cardiac Surgery and Cardiac Catheterization, Middle Euphrates Hospital, Al-Najaf Teaching Hospital, and Al-Hakim General Hospital.

Study Sample and sampling technique:

Eighty nurses were selected by the researcher through a non-probability (purposive) method according to the following criteria: (nurses are graduates of nursing colleges, targeted are all nurses who work in medical wards, dialysis units, emergency departments, and critical care units, nurses volunteer to participate in the study, and both day and night shift nurses). Forty of the nurses in the study group were exposed to the interventional nursing program, whereas the remaining forty nurses in the comparative group were not. The demographic features of the two groups were nearly identical. Nurses were divided into two groups of 40 at random after being chosen by non-probability (purposive) means.

Study instruments and tools:

The data collecting through the instruments adopting and developing by the researcher and divide into two parts. **Part I** Socio-demographic characteristics data in this part was used to assess demographic Characteristics of studied nurses which are comprised of (8) items, which include (age, gender, level of education, current nursing services ward, hospital's name, years of experience in the current workplace, overall years of experience as a nurse, attended formal training on patient care).

Part II The Quality Nursing Care Scale (QNCS-M) was created in Mongolia by Tsogbadrakh et al. in 2021 to assess how well nursing practitioners were perceived to be providing healthcare services. With respectable reliability, QNCS-M exhibits a good degree of content and construct validity (Tsogbadrakh et al., 2021). This scale was developed by the researcher, who also made some changes to fit the sample population. There are six domains in all, and specific items within each domain serve to illustrate the following: interdependent nursing role (4 items), independent nursing role (5 items), psychological element (7 items), personal milieu (9 items), social milieu (4 items) and spiritual force (7 items).

Methods and Measurement of Data Collection:

The implementation took place at Al-Sadder Medical City, Al-Najaf Center for Cardiac Surgery and Cardiac Catheterization, Middle Euphrates Hospital, Al-Najaf Teaching Hospital, and Al-Hakim General Hospital between September 4, 2023, and April 3, 2024. Obtained through, the form granted from the Ministry of Health to collect the participants from Al-Sadder Medical City, Al-Najaf Center for Cardiac Surgery and Cardiac Catheterization, Middle Euphrates Hospital, Al-Najaf Teaching Hospital, and Al-Hakim General Hospital.

In both the study and control groups, each nurse filled out a form with demographic information, quality of nursing care, a pre-test was given to each nurse included in the research, and then the program took place for a total of five weeks. The researchers approached the nurses once a day in a week per each group in the study group. The interventional sessions were composed of two parts: **I: Theory:** In this part, every theoretical session was conducted in front of the whole nursing class. presentations

covering every topic were used. The researcher began by clarifying the content of the session after a conversation to assess the nurses' level of familiarity with related subjects, and then the training phase started. And **II: Practice:** In this part, the researcher provided teaching material such as case study scenarios, videos, and pictures for discussion and analysis.

Statistical Analysis:

The study's findings are analyzed and evaluated using the following statistical data analysis techniques: (Tables: Frequencies, Percentages, mean of scores and standard deviation, Mann-Whitney U: Mann Whitney U to determine the main difference between the study's group variables, and Chi-Square: Chi-Square to test the association between the pre-test and post-test findings in one group).

RESULTS

Table (1) shows that, based on their sociodemographic characteristics, the research sample's statistical distribution in each group. Regarding participant age; most of the participant age group was (≤ 25.00) years old with (50.0%) in the Comparative group and the study group participant are (77.5%). Females in the study group had a high proportion of (70.0%), but the comparative group had a high percentage of (80.0%). Concerning the workplace most of nurses found in CCU about (35.0%), and Medical Wards about (57.5%) respectively in the comparative and study groups. On the other hand, most of the research participants were from Al-Sadr Hospital, at a rate of (82.5%). This applies to the comparative group. As for the study group, most of the participants were from Al-Hakim Hospital, at a rate of (45.0%). The years of experience in the participants' current workplace were ≤ 3, with a percentage equal to (77.5%) of the comparative group, or the percentage of the study group being (85.0%). Years of experience in the nursing field were ≤ 5, with a percentage equal to (80.0%) of the comparative group, or the percentage of the study group being (82.5%). When reviewing the training session, (57.5%) of participants from the comparison group had previously attended training nursing sessions. In contrast, (75.0%) of the participants in the study group had never attended a training session before.

Table (2) indicates that there is a non-significant difference in all aspects of nurses' quality of care for study and comparative groups during the pretest period except (independent nursing role) shows a significant difference, the majority of nurses' quality of care for study in both groups for all aspects at the pre-test period were low

Table (3) indicates that there is a significant difference in all aspects of nurses' quality of care for study and comparative groups during the post-test period, the majority of nurses' quality of care in the study groups for all aspects at the post-test period are high and in the comparative group are low.

Table (4) demonstrates that there are a non-significant association between nurses' quality of care for comparative group between pre and posttest except (interdependent nursing role) shows a significant association.

Table (5) shows there is non-significant difference between pre and posttest when comparison the nurses' overall quality of care for comparative group in both periods.

A comparison of the nurses' quality of care for the study group between the pre-and post-tests is shown in Table (6). The study group's pre- and post-test periods differed significantly, according to the chi-square test results.

Table (7) reflects the comparison of overall nurses' quality of care for the study group between pre and post-test, and the final mean of overall nurses' quality of care for the study group in both periods demonstrates there is a significant difference.

DISCUSSION:

The results of the data analysis show that the competency education program for nurses was implemented and that the evaluation of the program in two phases (pretest and posttest), it had a positive impact on the quality of care provided by the study group.

The effect of the competency-education program on the quality of care among nurses in this study may be shown in the positive post-test responses compared to the pretest responses in the study group. The results indicate that the majority of nurses' responses about the quality of care for all aspects at pre-test in the study group are low as shown in table (2).

While after implementing a competency-based educational program, nurses' responses about the quality of care for all aspects during the post-test period were high (table 3). The results of the current study revealed that the pre-test and post-test periods for the study group differed significantly, according to the results of the chi-square test (table 6). Shown in table (7) is the final mean of the nurses' overall quality of care for the study group in the posttest (mean = 2.56) compared to (mean = 1.54) in the pretest for the same group.

The outcomes of the current study are consistent with the study performed by Elewa and Elkattan (2017), and their results indicated that the educational program enhanced nurses' knowledge and practice in thalassemia and blood transfusion, leading to increased patient satisfaction and higher nursing quality Services.

In another research study in title " The effects of graduate competency-based education and mastery learning on patient care and return on investment: a narrative review of basic anesthetic procedures" Bisgaard et al. (2018) concluded that the evidence in support of the claim that procedural central venous catheterization sessions in combination with competency-based teaching enhance patient care.

According to Koy et al. (2023), the experimental group had statistically significant developments in patient safety, competency, nursing care quality, and the amount of care that remains undone following the intervention. still, statistically insignificant changes were observed in the control group. According to (Kamal Ali et al., 2024), competency-based education is used for evaluating how effectively maternity nurses accomplish and provide high-quality care when managing the early stage of labor. The results of their study support this claim. When contrasting the pre-intervention phase to the immediate post-intervention and follow-up phases, there was a statistically significant enhancement in the maternity nurses' overall knowledge, overall competency, overall practices, and overall quality of care about the management of the first stage of labor. The findings of the study indicate that, in relation to nursing care quality, the first stage of labor was well managed by (35.8%), (56.6%), and (62.3%) of the nurses who were studied during the pre-intervention, immediately post-intervention, and follow-up phases, consequently. These two previous studies provide additional support for the findings of the current study that were described previously.

The data analysis demonstrates a non-significant association between the nurses' quality of care for the comparative groups in tables (4) and (5) between the pre- and post-tests. The comparative group's overall mean in the pre-test period was (Mean = 1.45); in the post-test period, the same group's mean was (Mean = 1.43). As a consequence, the findings from both periods are classified as poor.

The current study supports the findings of (Mohammed et al., 2021), who created and carried out an educational program for nurses based on their actual requirements and the outcomes regarding the quality of nursing care. The results denote that, following the program, the vast majority of them (94%) had an elevated level of nursing care quality, whereas 56% had a low level ($P<0.000$).

Ultimately, the outcomes of this study made it clear that the quality of care in competency-based education program prior to and following the program differed statistically significantly. The quality of care is significantly impacted by nursing competencies, in a ward of (Rizany et al., 2018). Thus, preserving nursing competence through ongoing professional development has the potential to improve the quality of care given by nurses, according to (Rahmah et al., 2022).

CONCLUSIONS:

The study concluded that the competency-based nursing educational program had a significant influence on the quality of care during the post-test in the study group.

RECOMMENDATIONS:

1. Providing educational programs used for the continuous development of the nursing staff, and preparing these programs based on their actual needs.
2. Periodic assessment of the healthcare provider's abilities to provide, in addition to appropriate support and motivation to encourage healthcare providers to engage in activities that improve the quality of care from persons in authority.
3. Further studies be done on competency-based education in the future, using a bigger sample size and a variety of nursing areas of expertise, to produce solid proof of its influence on care quality.

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TABLES:

Table (1): Distribution of Socio-Demographic Characteristics for both Study and Comparative Groups

Variables	Categories	Statistic	Grouping		Total
			Comparative	Study	
age	≤ 25.00	F	20	31	51
		%	50.0%	77.5%	63.8%
	26.00 - 30.00	F	18	7	25
		%	45.0%	17.5%	31.3%
	31.00 - 35.00	F	2	1	3
		%	5.0%	2.5%	3.8%
	≥ 41.00	F	0	1	1
		%	0.0%	2.5%	1.3%
Total			**40**	**40**	**80**
Sex	Male	F	8	12	20
		%	20.0%	30.0%	25.0%
	Female	F	32	28	60
		%	80.0%	70.0%	75.0%
Total			**40**	**40**	**80**
current work place	CCU	F	14	3	17
		%	35.0%	7.5%	21.3%
	Medical Emergency Unite	F	5	11	16
		%	12.5%	27.5%	20.0%
	Medical Wards	F	5	23	28
		%	12.5%	57.5%	35.0%
	Dialysis Unite	F	10	3	13
		%	25.0%	7.5%	16.3%
	Surgical Emergency Unite	F	6	0	6
		%	15.0%	0.0%	7.5%
Total			**40**	**40**	**80**

hospital name	**Al-Hakeem**	**F**	0	18	18
		%	0.0%	45.0%	22.5%
	Al-Fourat	**F**	0	12	12
		%	0.0%	30.0%	15.0%
	Al-Najaf	**F**	0	10	10
		%	0.0%	25.0%	12.5%
	Al-Sader	**F**	33	0	33
		%	82.5%	0.0%	41.3%
	Open Heart Center	**F**	7	0	7
		%	17.5%	0.0%	8.8%
	Total		**40**	**40**	**80**
years of experience in current workplace	**≤ 3**	**F**	31	34	65
		%	77.5%	85.0%	81.3%
	4 – 6	**F**	7	4	11
		%	17.5%	10.0%	13.8%
	≥ 7	**F**	2	2	4
		%	5.0%	5.0%	5.0%
	Total		**40**	**40**	**80**
years of experience in nursing field	**≤ 5**	**F**	32	33	65
		%	80.0%	82.5%	81.3%
	6 – 10	**F**	8	6	14
		%	20.0%	15.0%	17.5%
	≥ 11	**F**	0	1	1
		%	0.0%	2.5%	1.3%
	Total		**40**	**40**	**80**
Training session	**No**	**F**	17	30	47
		%	42.5%	75.0%	58.8%
	Yes	**F**	23	10	33
		%	57.5%	25.0%	41.3%
	Total		**40**	**40**	**80**

%= percentage, ≤ = less than or equal, ≥ = more than or equal, freq. = frequency, S.D. = Standard Deviation.

Table (2): Comparison of Nurses' Quality of Care for Study and Comparative Groups at Pretest period of Measurement.

Quality of Care Aspects	Categories	Statistic	Grouping		Mann-Whitney U	Sig.
			Comparative	Study		
Interdependent Nursing Role	Low	F.	32	33	670.5	0.25 NS
		%	80.0%	82.5%		
	Acceptance	F.	5	6		
		%	12.5%	15.0%		
	High	F.	3	1		
		%	7.5%	2.5%		
	Mean Rank		37.2	42.7		
Independent Nursing Role	Low	F.	21	12	574.5	0.02 S
		%	52.5%	30.0%		
	Acceptance	F.	15	17		
		%	37.5%	42.5%		
	High	F.	4	11		
		%	10.0%	27.5%		
	Mean Rank		34.9	46.1		
Psychological Element	Low	F.	26	23	701	0.33 NS
		%	65.0%	57.5%		
	Acceptance	F.	12	13		
		%	30.0%	32.5%		
	High	F.	2	4		
		%	5.0%	10.0%		
	Mean Rank		38.0	43.0		
Personal Milieu	Low	F.	32	27	708	0.37 NS
		%	80.0%	67.5%		
	Acceptance	F.	6	9		
		%	15.0%	22.5%		
	High	F.	2	4		
		%	5.0%	10.0%		
	Mean Rank		38.2	42.8		
Social Milieu	Low	F.	31	33	783.5	0.86 NS
		%	77.5%	82.5%		
	Acceptance	F.	9	5		
		%	22.5%	12.5%		
	High	F.	0	2		
		%	0.0%	5.0%		
	Mean Rank		40.9	40.1		
Spiritual Force	Low	F.	27	21	692.5	0.29 NS
		%	67.5%	52.5%		
	Acceptance	F.	11	16		
		%	27.5%	40.0%		
	High	F.	2	3		
		%	5.0%	7.5%		
	Mean Rank		37.8	43.2		

Table (3): Comparison of Nurses' Quality of Care for Study and Comparative Groups at Posttest period of Measurement

Quality of Care Aspects	Categories	Statistic	Grouping		Mann-Whitney U	Sig.
			Comparative	Study		
Interdependent Nursing Role	Low	F.	32	3	56.00	0.000S
		%	80.0%	7.5%		
	Acceptance	F.	7	3		
		%	17.5%	7.5%		
	High	F.	1	34		
		%	2.5%	85.0%		
	Mean Rank		21.9	59.1		
Independent Nursing Role	Low	F.	20	4	309.5	0.000S
		%	50.0%	10.0%		
	Acceptance	F.	16	19		
		%	40.0%	47.5%		
	High	F.	4	17		
		%	10.0%	42.5%		
	Mean Rank		28.2	52.8		
Psychological Element	Low	F.	28	3	71.5	0.000S
		%	70.0%	7.5%		
	Acceptance	F.	11	5		
		%	27.5%	12.5%		
	High	F.	1	32		
		%	2.5%	80.0%		
	Mean Rank		22.3	58.7		
Personal Milieu	Low	F.	32	2	73	0.000S
		%	80.0%	5.0%		
	Acceptance	F.	7	3		
		%	17.5%	7.5%		
	High	F.	1	35		
		%	2.5%	87.5%		
	Mean Rank		22.3	58.7		
Social Milieu	Low	F.	30	1	55	0.000S
		%	75.0%	2.5%		
	Acceptance	F.	10	7		
		%	25.0%	17.5%		
	High	F.	0	32		
		%	0.0%	80.0%		
	Mean Rank		21.9	59.1		
Spiritual Force	Low	F.	26	1	106.5	0.000S
		%	65.0%	2.5%		
	Acceptance	F.	12	13		
		%	30.0%	32.5%		
	High	F.	2	26		
		%	5.0%	65.0%		
	Mean Rank		23.2	57.8		

Table (4): Comparison of Nurses' Quality of Care for Comparative Group between Pre and Posttest

Period of Measurement		Mean	S.D	Mean Rank	Chi-Square	Df	Sig.
Interdependent Nursing Role	Pre-test	1.31	0.45	1.59	7.000	1	0.008 S
	Post-test	1.26	0.40	1.41			
Independent Nursing Role	Pre-test	1.67	0.50	1.50	0.000	1	1 NS
	Post-test	1.66	0.50	1.50			
Psychological Element	Pre-test	1.49	0.43	1.56	2.778	1	0.09 NS
	Post-test	1.44	0.40	1.44			
Personal Milieu	Pre-test	1.39	0.43	1.51	0.077	1	0.78 NS
	Post-test	1.36	0.39	1.49			
Social Milieu	Pre-test	1.31	0.43	1.46	1.286	1	0.25 NS
	Post-test	1.33	0.42	1.54			
Spiritual Force	Pre-test	1.49	0.44	1.48	0.400	1	0.52 NS
	Post-test	1.49	0.45	1.53			

S.D. = Standard, Df = degree of freedom, NS = non-significant, S = significant.

Table (5): Comparison of Nurses' Overall Quality of Care for Comparative Group between Pre and Posttest

Period of Measurement	Mean	S.D	Mean Rank	Chi-Square	Df	Sig.
Pre-test	1.45	0.36	1.53	0.154	1	0.69 NS
Post-test	1.43	0.34	1.47			

S.D. = Standard, Df = degree of freedom, NS = non-significant.

Table (6): Comparison of Nurses' Quality of Care for the Study Group between Pre and Posttest

Period of Measurement		Mean	S.D	Mean Rank	Chi-Square	df	Sig.
Interdependent Nursing Role	Pre-test	1.36	0.40	1.05	32.400	1	0.000 S
	Post-test	2.65	0.46	1.95			
Independent Nursing Role	Pre-test	1.93	0.50	1.29	7.811	1	0.000 S
	Post-test	2.30	0.53	1.71			
Psychological Element	Pre-test	1.59	0.46	1.08	28.900	1	0.000 S
	Post-test	2.58	0.41	1.93			
Personal Milieu	Pre-test	1.46	0.44	1.08	28.900	1	0.000 S
	Post-test	2.57	0.44	1.93			
Social Milieu	Pre-test	1.29	0.45	1.03	38.000	1	0.000 S
	Post-test	2.73	0.44	1.98			
Spiritual Force	Pre-test	1.59	0.45	1.06	31.410	1	0.000 S
	Post-test	2.52	0.44	1.94			

S.D. = Standard, Df = degree of freedom, S = significant.

Table (7): Comparison of Overall Nurses' Quality of Care for Study Group between Pre and Posttest

Period of Measurement	Mean	S.D	Mean Rank	Chi-Square	df	Sig.
Pre-test	1.54	0.35	1.05	32.400	1	0.000 S
Post-test	2.56	0.38	1.95			

S.D. = Standard, Df = degree of freedom, S = significant.