

Effect of Implementing Nurses' Competencies Training Program on Quality of Patient Care at Prince Sultan Cardiac Center- Saudi Arabia

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Abstract:

Background: Poor-quality healthcare has a wide range of negative consequences for the patient and the healthcare system. The competence of nurses has a significant impact on quality of care and is closely associated with job performance, satisfaction, and absenteeism. **Aim:** to evaluate the effect of implementing nurses' competencies training program on quality of patient care at Prince Sultan Cardiac Center in Al Qassim in Saudi Arabia. **Method:** A quasi-experimental design at all inpatient departments of Prince Sultan Cardiac Center in Al Qassim Region- Saudi Arabia on (132) staff nurses, using three tools were used for data collection in the present study namely; Competencies Knowledge Questionnaire, Nurse Competence Scale (NCS) and Quality Patient Care Scale (QUALPAC). **Results:** At the pre-intervention phase, knowledge of competencies showed a moderate correlation with nurses' competencies ($r = 0.380$, $p < 0.001$) and a weaker yet significant correlation with patient care quality ($r = 0.240$, $p = 0.006$). Nurses' competencies, in turn, were associated with patient care quality ($r = 0.503$, $p < 0.001$). Immediately post-intervention, these relationships strengthened, with knowledge showing a positive correlation with both competencies ($r = 0.445$, $p < 0.001$) and patient care ($r = 0.264$, $p = 0.002$), while competencies demonstrated a robust association with patient care ($r = 0.618$, $p < 0.001$). **Conclusion: Based on the findings of this study**, it's concluded that there was statistically significant improvement in total level of staff nurses' knowledge regarding competencies through training program phases. Also, there was statistically significant improvement in staff nurses' level of competence through training program phases where the total mean score of nurses' competence at pretest phase and improved at immediately posttest and after 3 months follow up test phase. **Recommendations:** Replicate the current study in another setting with larger sample to ensure generalization of results and evaluate the long-term impact of competencies training program on nurses' performance and patients care outcomes.

Keywords: Implementing, Nurses' Competencies, Patient Care, Quality, Training Program.

Introduction

Nurses are a critical part of any healthcare system. According to The World Health Organization, almost 60% of the world's healthcare workforce comprised nurses. So, the role of nurses in patient care is unique, particularly in hospitals, because they spend the most time with patients where they are caring over 24-hour periods for seven days a week (Patrician, et al., 2024). This frequent contact means that they likely provide the majority of direct patient care. The way nurses practice becomes central to ensuring quality in patient care. They should provide patient care in accordance with nursing ethical codes and competences (Kamalasanan, et al., 2024).

Nursing competencies is defined as the ability to perform tasks that result in an anticipated outcome. Competence is falsely used interchangeably with competency. Indeed, competence reflects an individual's actions and abilities to fulfill job responsibilities while competency represents an individual's performance in specific circumstances to implement successfully (Almarwani & Alzahrani, 2023). Nursing competences includes core abilities that are required for fulfilling one's role as a nurse. These abilities are interconnected and applicable in various nursing practice settings. Nurses' competencies encompass the knowledge, skills, attitudes and abilities nurses must possess to effectively perform their duties and deliver high-quality care to patients (Notarnicola, et al., 2025).

Competencies are categorized into professional and clinical. Professional competency encompasses a range of essential aspects, including adherence to ethical standards, a deep understanding of healthcare legislation, effective decision-making capabilities, proficiency in professional development and the ability to collaborate effectively. Clinical competency includes principles of nursing care, adherence to clinical guidelines and effective nursing interventions. It also encompasses the utilization of technical and communication skills, knowledge, clinical reasoning, emotions and values in clinical setting (Pann, et al., 2025).

Nursing competences affects not only patients but also nurses themselves. Competent nurses contribute to patient safety and enables nurses to deliver high-quality care (Notarnicola, et al., 2025). Also, it was found that a higher level of competence is positively correlated with self-efficacy, commitment and job satisfaction. Conversely, nursing

competences is negatively correlated with job burnout reduces missed nursing care and. Nurses' clinical competence is a crucial prerequisite for the provision of effective care. Therefore, the development of nurses' competencies is important (Farokhzadian, et al., 2025).

Competence of nurses is influenced by various factors including educational level and training, work experience, clinical judgment, decision-making skills and communication (Liu, et al., 2025). Also, factors that affect nursing competence include work experience, type of nursing environment, adherence to professionalism, critical thinking, and personal factors. Personal factors, such as age, sex, confidence, knowledge, attitudes, and health were identified as having an impact on the competence of nurses. Understanding and addressing these factors are crucial for enhancing nurses' clinical competence and ultimately improving quality of patient care (Hernández, et al., 2025).

Quality of patient care is a foundational concept of nursing practice. The Institute of Medicine defines quality of care as the degree to which health services for individuals and populations increase the likelihood of desired health outcomes and are consistent with current professional knowledge. However, the quality of care a patient receives isn't just about their health outcome but it's about the overall experience (Wong, 2025).

Quality of patient care includes attributes such as effectiveness, efficiency, accountability, best patient outcomes, appropriateness, timeliness, privacy, confidentiality, and effective, continuous interaction and communication between the patient and the nursing staff (Wei, et al., 2023). Ensuring safety and security, reducing mortality and morbidity, improving quality of life and patient involvement have also been seen as quality attributes. Also, quality of care can be outlined in incorporated six domains safety, timeliness, efficiency, effectiveness, equity and patient centered care (Narayanan, et al., 2024).

Poor-quality healthcare has a wide range of negative consequences for the patient and the healthcare system. These can include physical and mental health issues. Also, poor quality of healthcare leads to decreased patient trust in the healthcare system, which leads to a decline in both the patient's quality of life and satisfaction with the treatment (Kamalasanan, et al., 2024).

There are different types of factors that could impede the quality of the delivered care. The most common factors are grouped into three main categories; patient related factors, nurses related factors and environmental factors. It is anticipated that a better understanding of these factors and their relationships can pinpoint better strategies for care quality improvement (Lachman, et al. 2024).

Quality improvement is vital in healthcare because it focuses on enhancing the standard of care provided to patients. Improving the quality of patient care is important to make sure that patients get the best care possible. Quality improvement processes help in the following areas; health outcomes, patient safety, communication, patient satisfaction, cost reduction and regulatory compliance (Hodkinson, et al., 2022).

One of the most effective strategies for enhancing quality of care is the implementation of training programs. These programs are designed to ensure that nurses possess the essential knowledge, skills, and behaviors required to meet specific clinical demands. Unlike traditional training, competency-based programs emphasize performance outcomes and allow for individualized learning based on existing proficiency levels (Abushammala, et al., 2023). This approach not only strengthens clinical competence but also enhances nurses' confidence and decision-making in complex care scenarios, ultimately improving patient care quality (Anderson-Wallace, & Downham, 2023).

A nurse's competencies training program is a structured educational intervention designed to enhance the knowledge, skills, and attitudes required for nurses to provide high-quality, safe, and evidence-based care (Sherwood & Barnsteiner, 2022). Additionally, such programs contribute to reducing variability in clinical practice, promoting interdisciplinary collaboration, and supporting healthcare system reforms. When linked with performance appraisal, mentorship, and supportive supervision, competency training programs become powerful tools for building nursing capacity and ensuring sustained professional excellence (Lee, et al., 2025).

Significance of study

As the healthcare sector continues to evolve rapidly, the patient experience has been prioritized by providers and patients alike. Healthcare leaders and administrators have long recognized that patients need to have a positive and respectful experience within the healthcare system to fully

trust their providers, and the fact of the matter is that nurses have the most significant impact on patient care (Rukmini, 2025).

Nurses play a vital role in the healthcare system, as they spend significant time with patients and provide approximately 80 % of primary care in hospitals. Nurses serve on the front lines in the healthcare industry, as they have the most direct and frequent contact with patients (Patrician, et al., 2024). So, nursing services make a significant contribution to the quality of patient care. The development of nursing competencies is essential to ensure high quality nursing care for patients and to foster professional development (Notarnicola, et al., 2025).

The competence of nurses has a significant impact on quality of care and is closely associated with job performance, satisfaction, and absenteeism (Almarwani & Alzahrani, 2023). Training systems should prioritize the development of core competencies and promote lifelong learning to ensure adaptability in an evolving healthcare landscape (Pann, et al., 2025). Therefore, this study was conducted to evaluate the effect of nurses' competencies training program on quality of patient care at Prince Sultan Cardiac Center- Saudi Arabia.

Aim of the Study

This study aimed to evaluate the effect of implementing nurses' competencies training program on quality of patient care at Prince Sultan Cardiac Center in Al Qassim in Saudi Arabia, through the following objectives:

1. Assessing staff nurses' knowledge regarding competencies at Prince Sultan Cardiac Center in Al Qassim, Saudi Arabia
2. Assessing staff nurses' level of competence at Prince Sultan Cardiac Center in Al Qassim, Saudi Arabia
3. Assessing level of quality of patient care at Prince Sultan Cardiac Center in Al Qassim in Saudi Arabia
4. Measuring the effect of implementing training program about nurses' competencies on quality of patient care at Prince Sultan Cardiac Center in Al Qassim in Saudi Arabia.

Research hypotheses:

The specific research hypotheses were:

H1. The staff nurses' knowledge level regarding competencies will improves after implementing the training program.

H2. The quality of patient care level improves after implementing the training program.

Methods

Design:

A quasi-experimental design with pretest-posttest was used to achieve the aim of this study. Quasi experimental research design is an empirical study used to estimate the causal effect of an intervention on its target population without random assignment to treatment or control and it is generally somewhere between correlational studies and true experiments (**Siedlecki, 2020**).

Setting:

This study conducted at all inpatient departments of Prince Sultan Cardiac Center in Al Qassim Region- Saudi Arabia, it is the first medical specialist specializing in amateur adult cardiac medicine and surgery in the Qassim region., this hospital is affiliated to the Ministry of Health (MOH). This hospital consists of one building; and provides a comprehensive range of high-quality health services. It occupied with 50 beds.

Participants:

A Convenient sample was utilized to include all available staff nurses (132) who are responsible for providing patients care in all above-mentioned settings and fulfilled the criteria of having at least one-year of experience of work and willing to participate in the study.

Tools of data collection

Three tools were used for data collection in the present study namely; Competencies Knowledge Questionnaire, Nurse Competence Scale (NCS) and Quality Patient Care Scale (QUALPAC).

Tool I. Competencies Knowledge Questionnaire: It consisted of two parts

Part 1: Personal data of nurses such as age, gender, marital status, educational qualifications, and years of experience

Part 2: Knowledge assessment questionnaire:

It will be developed by the researcher based on reviewing related literature (**González García, Pinto-Carral, Sanz Villorejo, & Marqués-Sánchez, 2020; Suprpto, Mulat, & Lalla, 2021**). It was used to assess staff nurses' knowledge about competencies. It consists of 20 questions in the form of true and false and multiple choices that related to staff

nurse competencies. The questions were scored as "1" for correct answer, and "zero" for incorrect answer.

Scoring system: The total scores of knowledge were summed up (ranges from 0-20) where the higher score indicating better level of knowledge. The total scores categorized based on cut of point as following:-

- ◆ Poor level of knowledge if total score <60 % (<12).
- ◆ Average level of knowledge if total scores 60-<80% (12-15).
- ◆ Good level of knowledge if total scores ≥80% (16-20).

Tool II. Nurse Competence Scale (NCS).

It was developed by (Meretoja, Isoaho & Leino-Kilpi, 2004) to assess the level of nurse competence. The NCS is a 73-item scale distributed into seven categories: helping role (seven items), teaching-coaching (16 items), diagnostic functions (seven items), managing situations (eight items), therapeutic interventions (10 items), ensuring quality (six items) and work role (19 items). Each item is rated by using a VAS (0-100), with the ends labelled 0 for very low level and 100 for very high level of competence.

Scoring system: Respondents were asked to indicate the frequency with which individual items are actually used in clinical practice using a four-point scale ranging from (0-3) as follows; not applicable =0, used very seldom =1, used occasionally =2, and used very often in my work =3. The total scores of nurses' competencies were summed up (ranges from 0-219) and categorized cut of point as following:-

- ◆ Low level of nurses' competencies if total score <50 (<109) .
- ◆ Moderate level of nurses' competencies if total scores 50%-75% (109-162).
- ◆ High level of nurses' competencies if total scores >75% (163-219).

Tool III. Quality Patient Care Scale (QUALPAC).

It was developed by (Sheikhi & Javad, 2004). The scale included 72 items examining the quality of nursing services. The items were categorized under three dimensions as follow: psychosocial (33 items), physical (26 items), and communication (13 items). Respondents are asked to indicate the quality of patient care using a 5-point Likert scale ranging from (1-5) as follows; very low (score 1), low (score 2), medium (score 3), high (score 4), very high (score 5).

Scoring system: Regarding the score ranges, the scores of the psychosocial dimension were classified as low (33-77), moderate (78-122),

high (123–165). The physical dimension was scored as low (26–60), moderate (61–95), and high (96–130). The communication scores were low (13–30), moderate (31–48), and high (49–65). The total scores of QUALPAC were low (72–168), moderate (169–265), and high (266–360).

Validity and reliability (Appendix VI):

Study tools were tested for its face and content validity by five experts (three professors and two assistant professor) in the field of Nursing Administration. Based on the opinion of panel of expertise minor modifications were done (paraphrasing for some items and arranging it into domains) and then the final form was developed and used for data collection.

Reliability was tested statistically to assure that the tools were reliable before data collection. The internal consistency, as indicated by Cronbach's alpha, was 0.834 for the competencies knowledge questionnaire, 0.984 for the nurse competence scale, and 0.989 for the quality of patient care scale.

Pilot study:

Pilot study was conducted on (14) nurses who representing 10% of study nurses to test the clarity and applicability of the study tool and time needed for filling it out. Nurses involved in the pilot study were excluded from the study as they were from the resting staff. This pilot study was done in two weeks before starting the study.

Ethical consideration:

Prior study conduction, approval was obtained from scientific research and ethics committee of the Faculty of Nursing at Mansoura University and another approval was obtained from the director of Prince Sultan Cardiac Center in Al Qassim Region- Saudi Arabia, after explanation of the purpose of the study and the schedule of data collection. The researcher met with the study participants and explained the aim of the study to gain their approval. The researcher clarified the aim of the study to the study participants to be included in the study. They assured that anonymity and confidentiality would be guaranteed and informed about their right to refuse or withdraw from the study at any time. The study procedures do not entail any harmful effects on participants.

Data Collection:

The collection of data and implementation of the training program was carried out from beginning of October 2024 to end of June 2025. The process of data collection was achieved three phases:

First phase:

This pre intervention (preprogram) phase lasted about two months from October 2024 until the end of November 2024. The researcher met the participants individually to explain the aim of the study and get the approval to participate in the study. The researcher presented all the time of data collection three days a week (Saturday, Monday and Tuesday) during the morning and afternoon shift (from 9.00 AM to 3.00 PM) for clarification, as well as distribution of data collection questionnaire (competencies knowledge questionnaire, nurse competence scale and quality patient care scale) at the end of shifts. Each participant nurse took about 20–30 minute to complete the questionnaires.

The data collected during this phase constituted the pretest for the study. The purpose of this pre-study assessment was to provide a baseline of nurses' knowledge toward competence, their level of competencies and quality patient care.

Second phase:

Based on the findings of the pre-program assessment, the researcher created and implemented the nurses' competencies training program for all participant nurses. The program timetable was carried out from the start of December 2024 until the end of March 2025. Total number of participant nurses was 132 nurses. Thus, they were divided into 12 groups. Eleven nurses were included in each of the twelve groups. The ten hours required for conducting program were divided into five sessions, lasting two hours for each through three days of the week.

- **First session:** the researcher introduced him-self, gave introduction to the program and its importance and explained its objectives. Also, the researcher identified the methods of education and training and the participant nurses filled out the nurses' interview and assessment questionnaire.
- **Second session:** participant nurses received information about definition of the concept related to nursing competencies, elements of nursing competencies, competency as a nursing care behavior and the importance of developing nursing competencies in addition to obstacles affecting nursing competencies

- **Third session:** participant nurses received information about concept of patient care quality and factors for achieving quality patient care. Also, participant nurses received information about aspects of quality patient care, the relationship between nursing competencies and quality of patient care, in addition to benefits of improving quality of patient care and challenges facing improvement of quality of patient care
- **Fourth session:** in addition to introduction to the practical part of the program, participant nurses received information and training about clinical assessment and decision-making, safe and effective medication management, mindful listening exercise as well effective communication
- **Fifth session:** participant nurses received information and training about empathy, mindful walking as well justice and equality. Also, participant nurses received information and training about participation in decision-making in addition to health education for the patient

The program was carried out by the researcher using easily accessible resources suitable content, and instructional strategies for every session. Power point presentations, brainstorming sessions, group discussions, and lectures were all employed as teaching strategies. On the first day, a handout developed by the researcher was given to each participant as educational booklet. Immediately after completion of the training program the three tools of data collection were distributed to the participants.

Third phase:

During this follow up phase, the researcher started to follow up the proposed progress after program through comparison of post test results with the baseline finding obtained in the pretest assessment by using the same three tools of data collection. It was conducted after three months of implementing the training program for each participant nurses. The data collecting of follow up lasted about three months from the beginning of April 2025 until the end of June 2025.

Data Analysis:

Data entry and statistical analysis was performed using computer software as statistical package of social science (SPSS) version 27 and Microsoft Excel version 2016 and appropriate statistical test will be used.

Statistical Analysis:

Data entry and statistical analyses were performed using the Statistical Package for the Social Sciences (SPSS), version 27. Descriptive statistics summarized the dataset, with frequencies and percentages applied to categorical variables, and means alongside standard deviations reported for continuous variables. Graphical displays of the data were created using Microsoft Excel. Differences in study variables according to participants' characteristics were analyzed using independent t-tests and one-way ANOVA. To compare proportions across the three measurement points: pre-intervention, immediate post-intervention, and three-month follow-up; Chi-square and Cochran's Q tests were employed.

Paired t-tests were conducted to assess changes in mean scores of the study variables between the pre-intervention phase and both the immediate post-intervention and follow-up phases. Linear regression analysis examined the effect of the nurses' competencies training program on the quality of patient care, while Pearson correlation analysis assessed relationships among continuous variables. A p-value below 0.05 was deemed statistically significant, and a p-value below 0.01 was considered highly significant.

Results:

Part I: Demographic characteristics of the studied nurses

Table (1): Personal characteristics of the studied nurses (n = 132).

Personal Characteristics	No	%
Age in years:		
• < 35	62	47.0
• ≥ 35	70	53.0
Mean ± SD	34.87 ± 5.45	
Gender:		
• Male	12	9.1
• Female	120	90.9
Marital status		
• Single	40	30.3
• Married	90	68.2
• Divorced	2	1.5
Educational qualification:		
• Diploma of nursing	14	10.6
• Bachelor of nursing	106	80.3

• Master/doctorate degree of nursing	12	9.1
Experience in years:		
• 1 – 5	38	28.8
• > 5 – 10	38	28.8
• > 10	56	42.4
Attending training courses about cardiac patient care or quality:		
• Yes	42	31.8
• No	90	68.2

Table 1 shows the personal characteristics of the studied nurses. This table illustrates that nurses aged ≥ 35 years represented the largest proportion (53.0%), compared to 47.0% who were younger than 35 years, with a mean age of 34.87 ± 5.45 years. In terms of gender, the majority of participants were females (90.9%), while only 9.1% were males, showing a clear gender imbalance in the nursing workforce. Regarding marital status, most of them were married (68.2%), while divorced nurses represented the smallest proportion (1.5%). Educationally, the bachelor's degree holders dominated (80.3%), whereas nurses with postgraduate qualifications were the least represented (9.1%). In terms of experience, the highest percentage had more than 10 years of practice (42.4%), compared to 28.8% for both the 1–5 years and 5–10 years categories. Finally, most nurses (68.2%) had not attended training courses related to cardiac care or quality, reflecting a potential gap in continuous professional development.

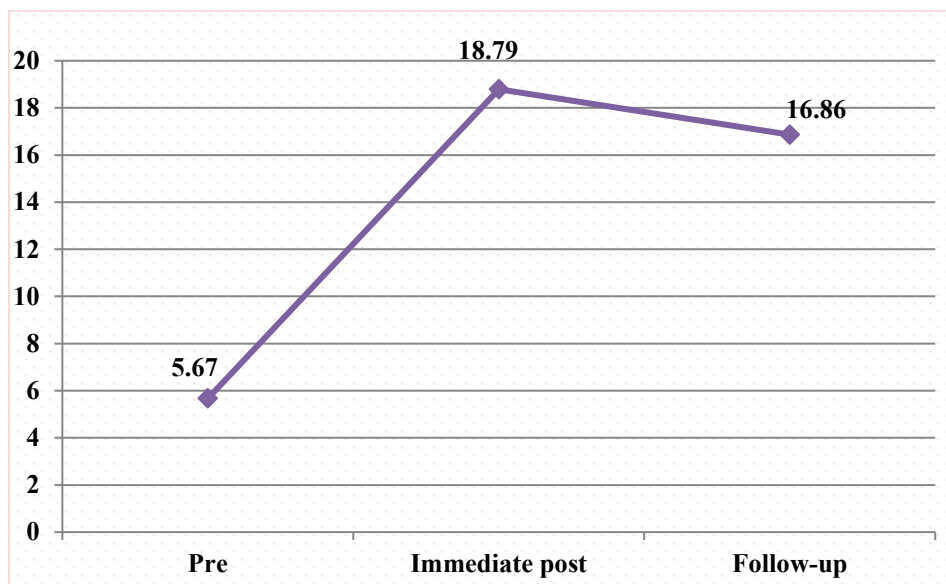


Figure (2): Mean scores of staff nurses' knowledge about nurses' competencies throughout the program phases (n=132)

Figure 2 depicts the mean scores of staff nurses' knowledge about nurses' competencies throughout the program phases. This figure illustrates the progression of staff nurses' mean knowledge scores regarding nursing competencies across the program phases. The lowest score was observed during the pre-intervention phase (5.67), reflecting limited initial knowledge. After the intervention, knowledge mean score markedly improved, reaching the highest score at the immediate post-intervention phase (18.79). Although a slight decline was noted at the three-month follow-up phase (16.86) compared to the immediate post-test, the mean score remained substantially higher than the baseline, indicating that the educational program had a sustained positive impact on nurses' knowledge over time.

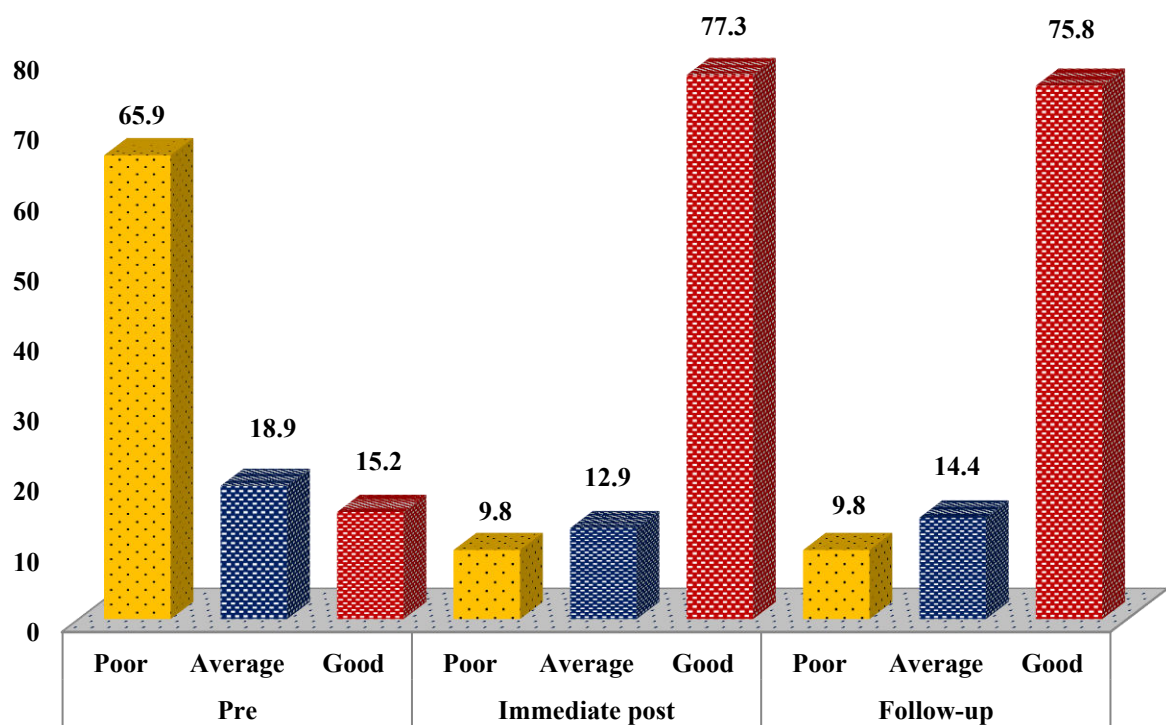


Figure (3): Levels of nurses' competencies knowledge as perceived by staff nurses throughout the program phases (n=132)

Figure 3 presents the distribution of staff nurses' competency knowledge across the program phases. Before the program, most nurses had a poor level of knowledge (65.9%), with only 15.2% reaching a good level, indicating a limited baseline of competency. Right after the program, there was a significant improvement, with 77.3% of nurses achieving a good knowledge level, while poor knowledge decreased sharply to 9.8%. During the follow-up phase, this positive trend

continued, as 75.8% of the studied nurses maintained good knowledge, and poor knowledge remained at the lowest level recorded (9.8%). These results demonstrate the program's strong effectiveness in improving and maintaining nurses' knowledge, shifting the distribution from mostly poor scores before the program to mostly good scores afterward.

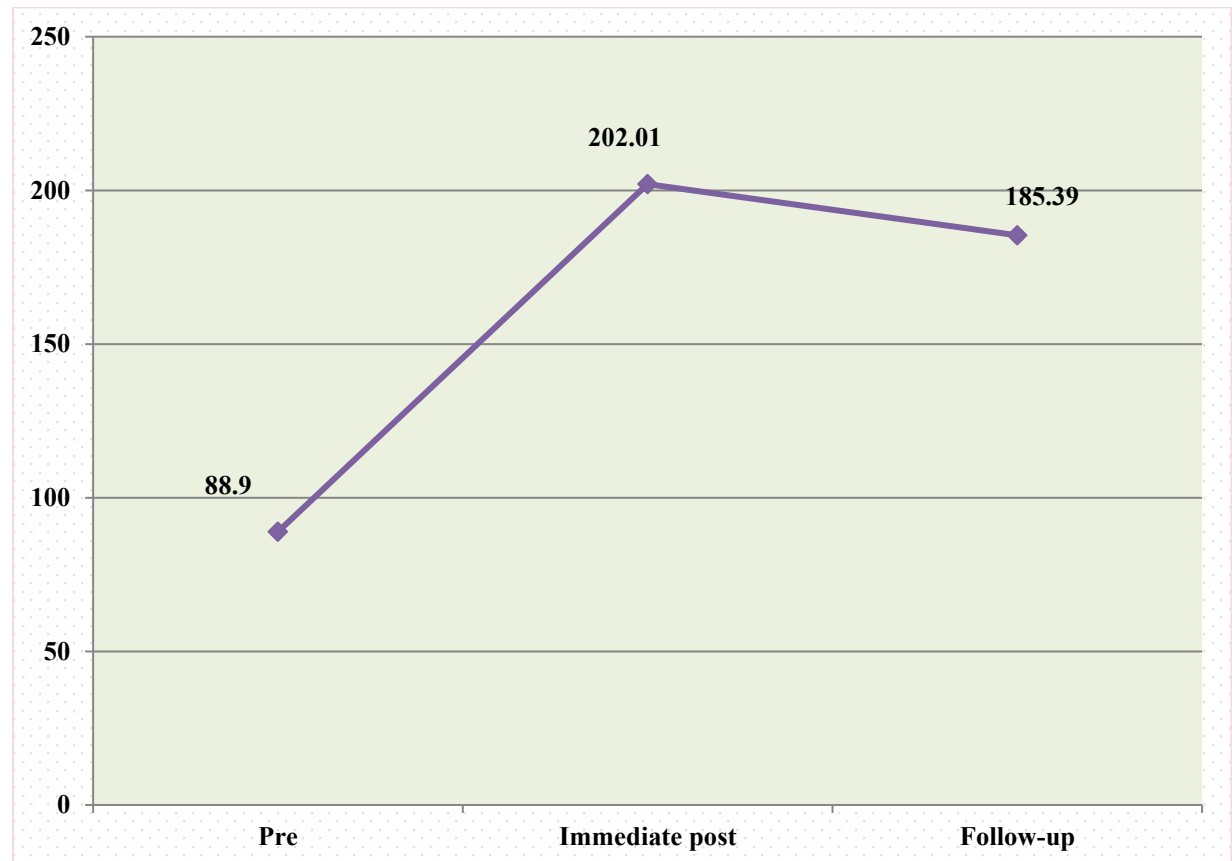


Figure (4): Total mean score of nurses' competencies as perceived by staff nurses throughout the program phases (n=132)

Figure 4 depicts the total mean scores of nurses' competencies as perceived by staff nurses throughout the program phases with an increasing trend from pre to post phases. Initially, the mean score was 88.9 before the program, which significantly increased to 202.01 immediately after the program, demonstrating a notable improvement. At follow-up, the mean score slightly decreased to 185.39, suggesting some decline but maintaining a considerably higher level compared to the pre-program phase. This trend indicates the program's effectiveness in boosting nurses' competencies over time, even though a slight reduction occurs in the longer term, the competency scores remain substantially above the baseline level.

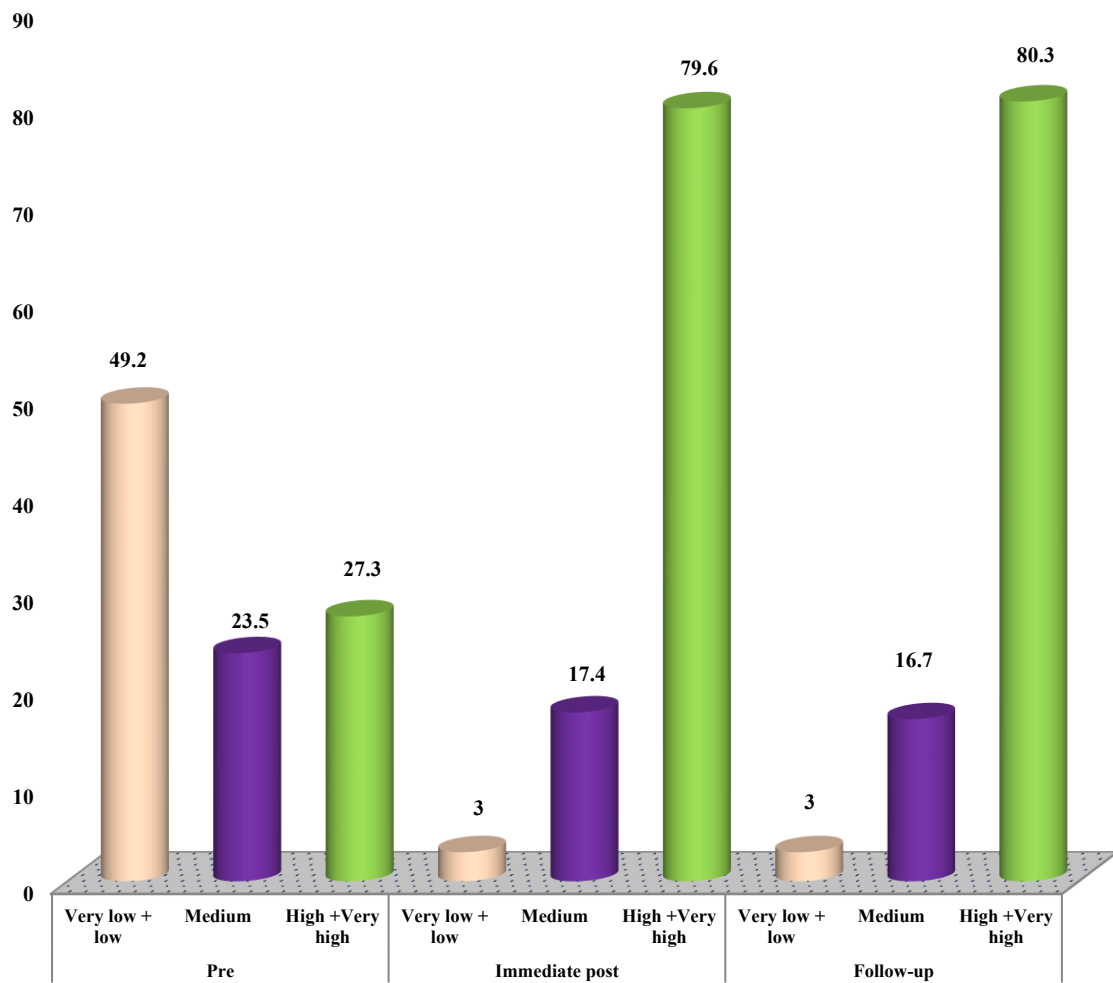


Figure (5): Total scores of total quality patient care among staff nurses throughout the program phases (n=132)

Figure 5 provides a clear illustration of how the total quality of patient care among staff nurses changed over the program's three phases. Before the program, the largest proportion of nurses (49.2%) delivered care rated as "Very low + low," while only 27.3% achieved "High + Very high" quality. After the program, these numbers shifted dramatically: The percentage of "Very low + low" scores dropped to just 3% immediately post-program and remained minimal at follow-up, indicating a substantial reduction in low-quality care. Meanwhile, the "High + Very high" group surged to 79.6% immediately post-program and reached the highest value of 80.3% at follow-up. These results highlight a significant and sustained improvement in patient care quality following the intervention.

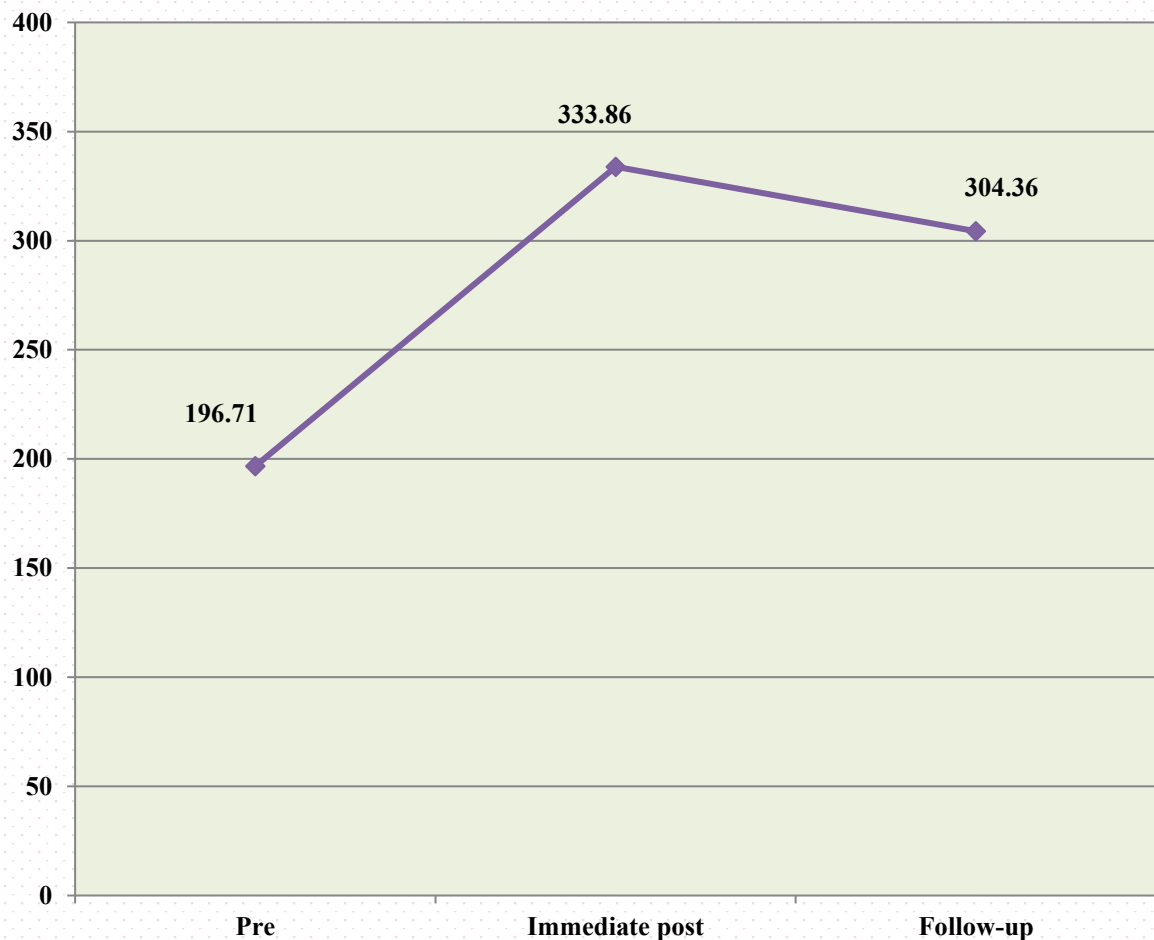


Figure (6): Mean scores of total quality patient care among staff nurses throughout the program phases (n=132)

Figure 6 illustrates the mean scores of total quality patient care among staff nurses across the program phases. The lowest mean score was recorded at the pre-program phase with a value of 196.71, reflecting the baseline level of nurses' performance in quality patient care. A substantial improvement was observed at the immediate post-program phase, where the mean score peaked at 333.86, representing the highest value across all phases. Although a slight decline was noted at the follow-up phase with a mean score of 304.36, the result remained significantly higher than the pre-program value. These findings indicate that the educational program had a strong positive impact on enhancing nurses' quality of patient care, with improvements being sustained over time despite a minor reduction at follow-up.

Table (2): Correlation between total scores of knowledge about nurses' competencies, nurses' competencies, and quality of patient care among the studied staff nurses throughout the program phases (n=132).

Program phases	The study variables	Knowledge about nurses' competencies		Nurses' competencies	
		r	p-value	r	p-value
Pre	Nurses' competencies	0.380	< 0.001**		
	Quality of patient care	0.240	0.006**	0.503	< 0.001**
Immediate post	Nurses' competencies	0.445	< 0.001**		
	Quality of patient care	0.264	0.002**	0.618	< 0.001**
Follow-up	Nurses' competencies	0.461	< 0.001**		
	Quality of patient care	0.454	< 0.001**	0.765	< 0.001**

r= Correlation coefficient. *Statistically significant at $P < 0.05$. ** Highly statistically significant at $P < 0.01$

Table 2 presents the correlation analysis between staff nurses' knowledge of nursing competencies, their actual competencies, and the quality of patient care across program phases. The results consistently demonstrate significant positive correlations. At the pre-intervention phase, knowledge of competencies showed a moderate correlation with nurses' competencies ($r = 0.380$, $p < 0.001$) and a weaker yet significant correlation with patient care quality ($r = 0.240$, $p = 0.006$). Nurses' competencies, in turn, were associated with patient care quality ($r = 0.503$, $p < 0.001$). Immediately post-intervention, these relationships strengthened, with knowledge showing a positive correlation with both competencies ($r = 0.445$, $p < 0.001$) and patient care ($r = 0.264$, $p = 0.002$), while competencies demonstrated a robust association with patient care ($r = 0.618$, $p < 0.001$). At follow-up, the correlations became even more pronounced, with a strong positive relationship observed between competencies and patient care ($r = 0.765$, $p < 0.001$), alongside

positive correlations between knowledge as regards patient care ($r = 0.454$, $p < 0.001$) and competencies ($r = 0.461$, $p < 0.001$).

Discussion

Globally, the professional empowerment and competency of nurses are a focus of human resource management in healthcare systems, and the World Health Organization mandates that member countries report and implement plans to strengthen nurses' competencies. Nursing competency leads to improving the quality of care, increasing patient satisfaction, enhancing nursing education, and promoting nursing as a profession. Patients expect competent behavior from nurses, and following the high prevalence of medical incidents, the public and media have become concerned about clinicians' competency. Thus, professionals must demonstrate their clinical competence to perform specific roles. Neglecting nursing competency can cause problems for organizations, resulting in frustration, job dissatisfaction, and attrition (**Zaitoun, 2024**).

Competent nurses are key contributors to maintaining safe and effective health care services by integrating knowledge, skills, and attitudes that enable them to adapt to dynamic health environments. Nurses are often the primary point of contact for patients and are responsible for ensuring that their needs are met. By providing patient-centered care, nurses can help create a culture that prioritizes patient safety. In addition, they can act as advocates for patient safety, promoting a culture of safety within the organization and encouraging others to do the same. Nurses should be given the power to make decisions about patient care and safety, as well as to report any harmful conditions or concerns. They can indeed act as role models for other healthcare professionals, emphasizing the importance of patient safety and providing a good example for others to follow (**Zaitoun et al., 2023**).

This study aimed to evaluate the effect of implementing nurses' competencies training program on quality of patient care.

Discussion of the current study is presented in the following parts: first part concerned with staff nurses' knowledge regarding nurses' competencies throughout the program phases. Second part concerned nurses' competencies as perceived by staff nurses throughout the program phases. Third part concerned Quality of patient care as perceived by staff nurses throughout the program

phases. Fourth part concerned relationships between the studied variables and personal characteristics through program phases among the studied nurses at Prince Sultan Cardiac Center- Saudi Arabia.

Staff nurses' knowledge regarding nurses' competencies throughout the program phases.

The result of the present study revealed that more than three fifths of studied nurses had poor level of knowledge regarding nurses' competencies before implementation training program.

This may be due to the majority of studied nurses didn't attend previous training program about nurses' competencies because they are facing time pressure to attend hospital workshops due to various deadlines and work priorities. Also, could be attributed to a shortage of protocols, guidelines, and a manual procedure book for the care of cardiac patients.

This outcome is matched with study done by **El-Sayed et al. (2019)** entitled "Nursing core competencies of staff nurses providing care for burned patients" and showed that the highest percentage of the studied nurses had incorrect knowledge about competence and recommended apply educational program to improve nurses' knowledge.

Also, this finding matched with **Baraka, et al., (2024)** in a study about "Effect of Competency Based Training Program on the Nurses' Performance, and Self- confidence" who found that more than three fifths of nurses showed poor level of knowledge before implementation of competency based training program This findings agreed with study done by **Akl, et al., (2024)** in a study about "Effectiveness of competency-based training on Nurses' performance regarding oxygen administration safety" who found that more than three fifths of nurses had unsatisfactory level of knowledge pre training intervention.

.Conversely, this finding is disagreed with **Osman et al., (2019)** entitled " Relationship between nurses' competencies and quality of patient care at intensive care units" and clarified that the total knowledge level of the most percent of the studied nurses had good while the least percent of them had had poor total knowledge level.

Whereas post-intervention program revealed a highly significant improvement in level of knowledge regarding nurses' competencies. From researcher point view, this finding could be attributed to the

use of multiple teaching methods, the development of training program based on nurses' needs, the clarity and simplicity of its content, and the use of simple language and the frequent repetition to fix such knowledge.

This finding in same line with study done by **Ike, & Oluwatosin, (2022)** entitled "Effect of an Educational Intervention on Nurses' Competency in the Neonatal Unit of a Teaching Hospital in Nigeria" and reported that there is a significant improvement in the nurses' knowledge score at pretest compared to pretest. This findings agreed with **Mohamed, et al., (2022)** in a study about "Effect of Competency Based Training Program on Nurses' Performance Regarding Endotracheal Tube Suction for Neonates on Mechanical Ventilator" reported that there was a highly statistically significant difference in total level of knowledge between pre and post competency-based training program. also, indicated that there was a positive correlation between nurses' total competence score with the nurses' total knowledge score.

Also, these result was in agreement with **Radwan et al. (2022)** "Effect of educational program on nurses' competency regarding providing palliative care for children with advanced stage of cancer" and showed that about two thirds of the studied nurses had poor knowledge at preprogram, while after apply educational program all studied nurses had good knowledge, while at follow up phases, most of them had good knowledge with a significant improvement.

Additionally, these findings supported with **Zaitoun, (2024)** in a study about "Assessing nurses' professional competency in Palestine" who concluded that training program had a beneficial impact on enhancing the knowledge and skills of staff nurses. This findings agreed with study done by **Baraka, et al., (2024)** in a study about "Effect of Competency Based Training Program on the Nurses' Performance, and Self-confidence" who concluded that Competency based training program was effective in enhancing the nurses' knowledge which translated into higher confidence scores.

Moreover, this finding matched with **Akl, et al., (2024)** in a study about "Effectiveness of competency-based training on Nurses' performance regarding oxygen administration safety" who found that after implementing a competency-based training program, the knowledge of nurses significantly improved, and majority of the studied nurses had satisfactory knowledge. This finding was in agreement with **Amein et al. (2024)** entitled "Effectiveness of plasmapheresis educational and training program on nurses'

competency" and apperated that before the implementation of the educational program, only less than two fifths of nurses possessed satisfactory knowledge and after apply program increase to majority of them had satisfactory level.

Nurses' competencies as perceived by staff nurses throughout the program phases

Nurses competencies emphasizes the comprehensive abilities of nursing knowledge, skills, attitudes, traits, and abilities that can achieve excellent work results in the actual nursing position and be competent for clinical nursing work. It involves using knowledge, technical skills, clinical reasoning, communication, emotions, and values and rethinking daily activities to provide services to individuals and society, reflecting sound judgment and habits (Yingxia, et al., 2025).

Regarding helping role domain, the result of the present study revealed that more than half of studied nurses had low level of competences regarding helping role before implementation training program. From researcher point view, poor helping role competency before intervention may be due to lack of resources and ongoing education for their competency development. These findings indicate that nursing education should emphasize developing these competencies and revising competency standards to prioritize helping role and empathy.

.These findings agreed with **Ali, et al., (2025)** in a study about "Self-assessment of nursing competency among nurse interns" who found that the higher percentage of nurses had low level of helping role competences. On the other hand, this findings contradicted with **Cocchieri, (2023) who studied** "Describing nurses' competence in primary nursing care model: A cross-sectional study conducted in an Italian Teaching Hospital" and found that nurses considered their levels of helping role competence as good.

Also, these findings unmatched with **Chiari, et al., (2025)** who studied "Nurse Competence Scale: A Multicenter Observational Study on Nursing Competencies in Northern Italy" and concluded that higher competencies scores were showed in helping role dimension

Whereas post-intervention program revealed a highly significant improvement in level of competences regarding helping role. The improvement of nurses' helping role competence after the intervention may be because competency-based education often

included interactive and engaging learning materials such as simulations, case studies, and practical experiments that attracted nurses' interest and motivation, making the learning experience more enjoyable and effective, which consequently resulted in improving their level of competence. Also, this findings highlighted the importance of incorporating structured training programs in nursing education and professional development initiatives, particularly focused on building role helping skills.

These findings matched with **Elhabashy, et al., (2024)** in a study about "Effect of evidence-based nursing practices training program on the competency of nurses caring for mechanically ventilated patients: a randomised controlled trial" who found a highly statistically significant difference between pre and post training program among the intervention group in relation to level of helping role competences.

Quality of patient care as perceived by staff nurses throughout the program phases.

Quality of patient care refers to the provision of safe, effective, patient-centered, and evidence-based care by nursing professionals. It encompasses a range of dimensions, including technical competence, communication skills, professionalism, and ethical practice. It is essential for promoting positive patient outcomes, enhancing patient experience and satisfaction, and improving the overall quality of healthcare systems (Haddad & Geiger, 2022).

Regarding psychological care domain, the result of the present study revealed that more than one thirds of studied nurses had low level of quality regarding psychological care before implementation training program. These findings agreed with **Abdul-Hussein & Mustafa (2024)** in a study about "Effectiveness of Competency-Based Educational Program on Quality of Care among Post-Graduate Nurses" who found that more than half of intervention group had low level of psychological care element at pretest phase.

Whereas post-intervention program revealed a highly significant improvement in level of competences regarding psychological care. From researcher point view, this finding may be due to training programs that can help participants to obtain new knowledge and skills and improve their professional learning and job performance. This outcome in same line with study done by **Farokhzadian et al.,**

(2020) who conduct study about "Promoting the psychosocial and communication aspects of nursing care quality using time management skills training" and showed that mean score of nursing care quality in psychosocial aspect significantly increased after the intervention.

Regarding physical care domain, the result of the present study revealed that more than one thirds of studied nurses had low level of quality regarding physical care before implementation of training program. This may be due to training the nurses in with the essential competences for patient care, their competency level can be enhanced, leading to the delivery of effective care and improving patient physical care quality.

This outcome consistent with study done by **Jarrar et al., (2021)** entitled " Effect of Practice Environment on Nurse Reported Quality and Patient Safety: The Mediation Role of Person-Centeredness" and showed that more than half of the studied nurses had low level for physical dimension and recommended that perform continuous training program for improvement physical patient quality.

Whereas post-intervention program revealed a highly significant improvement in level of competences regarding physical care. These results strongly confirm the intervention's effectiveness in elevating nurses' adherence to physical care practices, with sustainable outcomes across follow-up, thereby ensuring better patient safety, comfort, and holistic care.

These findings suggest that the structured training program strengthened nurses' performance in core physical care activities, such as ensuring patient safety, maintaining comfort, and delivering fundamental nursing care in accordance with established standards. Also, the researcher believes that, improved adherence to physical care practices is critical, as it directly contributes to reducing patient risks, preventing complications, and promoting holistic, patient-centered care.

These findings in the same direction with **Imanipour, et al., (2022)** in a study entitled "The effect of competency-based education on clinical performance of health care providers: A systematic review and meta-analysis" who found that competency- based education had a significant impact in enhancing the clinical performance of physical care of the nurses in the intervention group compared with the control group. These findings agreed with **Rahmah, et al., (2022)** in a study about "Nurses' efforts to maintain competence: a qualitative

study” who found that maintaining nursing competence through continuous professional development and training can improve the quality of physical care.

Also, this finding matched with **Akl, et al., (2024)** in a study about “Effectiveness of competency-based training on Nurses’ performance regarding oxygen administration safety” who found that there was a statistically significant effect of nurse competency training on quality of physical care.

Regarding communication domain, the result of the present study revealed that more than half of studied nurses had low level of quality regarding communication before implementation training program.

Conclusion

Based on the findings of this study, it’s concluded that there was statistically significant improvement in total level of staff nurses' knowledge regarding competencies through training program phases. Also, there was statistically significant improvement in staff nurses' level of competence through training program phases where the total mean score of nurses’ competence at pretest phase is 88.90 ± 26.53 , and improved at immediately posttest and after 3 months follow up test phase to 202.01 ± 35.57 and 185.39 ± 34.78 respectively. Additionally, there was statistically significant improvement in total level of patient care quality through training program phases. where the total mean scores of quality patient care at pretest phase is 196.71 ± 30.94 and improved at immediately posttest and after 3 months follow up test phase to 333.86 ± 46.77 and 304.36 ± 47.77 respectively.

Recommendation Based on the findings of this study, the following might be recommended For nursing staff

- Nurses have to engage in self-directed learning and continuously assess their own competency level.
- Nurses have to actively participate in competencies-based training programs to enhance clinical skills and improve quality of patient care.
- Nurses are recommended to apply acquired competencies in daily clinical practices to maintain effective and safe patient care
- Nurses are recommended to adhere to evidence-based practices to maintain high quality of care standards.

For head nurses and nursing leaders

- Conduct periodic competency assessment to detect performance gaps among staff
- Create supportive work environment that encourage professional development for nursing staff.
- Implement periodically competency based training program tailored to educational and performance needs of nursing staff.
- Head nurses are recommended to provide nursing staff with ongoing supervision, mentoring and feedback about their competences.

For health care organization

- Health care organizations are recommended to adopt competencies based training as a core strategy to enhance quality of patient care.
- Health care organizations have to develop standardized competency assessment system to monitor and evaluate nursing staff.
- Health care organizations have to ensure adequate staffing and resources to maintain quality of care.
- Police should be developed to facilitate ongoing education and obligatory competences training for all nursing staff.

For nursing education

- Incorporate competencies-based education in nursing curricula to align with clinical practices requirements that promote quality of patient care.
- Competency assessment tools are recommended to be standardized with in the nursing educational programs.
- More stress on the concepts of nursing competences and quality of patient care in nursing curricula are recommended.
- Simulation based training are recommended to be integrated into nursing education to enhance clinical competence of future nurses.
- Strengthen collaboration between academic institutions and health care setting to provide specialized training.

For nursing research

- Replicate the current study in another setting with larger sample to ensure generalization of results.

- Further studies are recommended to evaluate the long-term impact of competencies training program on nurses' performance and patients care outcomes .
- Another study to compare different training methods to determine the most effective strategies for enhancing quality of patient care.
- Further study to investigate the effect of competencies training program on other outcomes as missed nursing care, patient safety outcomes and clinical decision making.

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