Effect of Training Program Regarding Care of Patients Undergoing Open Heart Surgery on Nurses' Performance Approach

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ABSTRACT

Background: Open heart surgery is a common interventional procedure for ischemic and valvular heart disease which is accompanied by postoperative care. Considering this ***aim of the study*** was framed to evaluate the effect of nursing training program regarding care of patients undergoing open heart surgery on nurses' performance. ***Subjects and Method:*** A quasi- experimental research design was used to conduct this study. A representative sample of 30 nurses, whom dealing with open heart surgery patients were selected from the Mansoura University Hospital. Two tools were used for data collection; nurses interview sheet, and nursing practice observational Checklist. ***The results*** of the present study found that, there was a significantly improvement in nurses' knowledge and practice concerning to open heart surgery after implementation of open heart surgery nursing care training program, frequency of this improvement of nurses according to their total knowledge score at follow up phase was (73.3%) and frequency of this improvement of nurses according to their total practice score at follow up phase was (60.0%). There was a positive correlation between nurses total knowledge score and their total practices score in pre, post and follow up phases of implementing training program. Hence the study ***concluded*** that the training program had a significant positive impact on nurses' knowledge and practice concerning to open heart surgery after implementation of the training program. The study ***recommended***: A training programs should be organized for the nurses to improve their knowledge and practice regarding open heart surgery nursing care, feedback should be done as well as booklets about open heart surgery should be available in cardiothorathic department in the hospital.

Keywords: Open heart surgery, nursing training program, nurses' performance

INTRODUCTION

Open heart surgery is one of the most important procedures that can resolve many cardiac problems. The most important of these are myocardial revascularization, valve repair or replacement, repair of congenital or acquired structural abnormalities, placement of a mechanical assist device, and heart transplantation (*Abdallah, 2012).*

Open heart surgery is any surgery where the chest is opened and surgery is performed on the heart muscles, valves, arteries or other heart structure. The term open refers to the chest not the heart itself. The heart may or may not opened depending on the type of the surgery. Heart lung machine (cardiopulmonary bypass) is used during conventional open heart surgery. Cardiac surgery including coronary artery bypass grafting (CABG) and valvular surgery represent the most common classes of surgical procedure performed globally *(Abdelnabey, et al., 2014& Abdallah, 2012).*

Cardiovascular diseases account for 30% of all global deaths worldwide; the majority of cardiovascular deaths are related to coronary heart disease *(WHO, 2016)*. *(Abdelnabey, et al., 2014 & Dzomeku, et al., 2013),* reported that*,* Nearly 800.000 cardiac surgical procedures are performed annually worldwide*.*

The critical care nurse has a vital role in the postoperative care of open heart surgery patients. The patient undergoing CABG surgery deserves to have confidence that the professional nurse is knowledgeable, caring, efficient, and effective in providing necessary perioperative care. Proper preparation of the patient and significant others, expertise during the intraoperative phase, and a thorough knowledge base combined with skill and compassion of the nursing staff during the postoperative phase increase the likelihood of a positive outcome for the patient *(Martin and Turkelson, 2006).*

Cuddy, 2015 & Rawlins, 2007, mentioned that, an orientation program and training were essential for nurses and as pointed out by *Finkelman and Kenner, 2013,* that an in service educational program is always updating nurses knowledge, improving staff development and skills, also acquiring the ability to function purposefully in emergency situation. In this respect, *Delaune and Ladner, 2011*, stressed that, the in service education should be important and should be considered as a cornerstone of

total quality nursing care. Moreover, the quality should begin with education and end with education.

Continuing education for nurses continues to be a viable means by which nurses can remain competent in the face of ever increasing knowledge and technology in the health care setting. It helps the nurses to remain competent and advance in their fields of practice *(Eustace, 2014)*.

However, in Egypt, according to statistics and medical record department (2009) at Kasr El Aini hospital, the number of patients admitted for cardiac surgeries during the last three years starting from January 2006 to December 2008 was recorded as: 987 patients during the year 2006, 1256 patients during the year 2007, and 1280 patients during the year 2008, which reveals gradual increment in patients' number *(Abdelnabey, Et al. 2014).*

According to medical record of Intensive Care Unit at Ain Shams University Hospitals (2011), the total number of admission to open heart surgeries were 1054 patients undergoing open heart surgeries in 2010, while in 2011, they were 880 patients*. Statistical reports in cardiothoracic surgery department at Mansoura University hospital (2016)*, reported that, the number of open heart surgery cases is increasing and had reached to: 150 patients in 2013, 219 patients in 2014, 362 patients in 2015, and 39 patients during the first two months of 2016.

AIM OF THE STUDY:

Aim of the study is to evaluate the effect of nursing training program regarding care of patients undergoing open heart surgery on nurses' performance.

To fulfill the aim of this study the following hypothesis was formulated:

- After-implementation of nursing training program, nurses' knowledge will be higher compared to pre- training program.
- After implementation of the nursing training program, nurses' practices will be improved.

SUBJECTS AND METHOD:

The subjects and method of the current study were discussed under the following four main designs:

(I)   Technical Design

(II)   Operational Design

(III)   Administrative Design

(IV)   Statistical Design

Research Design:

A quasi-experimental study design was used for the conduction of this study.

(I): Technical Design:

The technical design includes the study setting, subjects, and tools of data collection.

Setting:

This study was conducted at cardiothoracic surgery department, Mansoura University Hospital in Mansoura city.

Subjects:

For nurses: 30 nurses who working at cardiothoracic surgery department at Mansoura University Hospital were participated in this study.

Under the following criteria:

- All nurses who are giving direct care for patients undergoing open heart surgery.
- All different levels of education and different years of experience.
- Both genders.

Tools of data collection:

Two main tools were used for data collection:

Tool I: A structured interviewing questionnaire:

This tool was developed by the researcher and consisted of two parts:

❖ **Part I: Sociodemographic characteristics of the nurses:**

It was composed of 8 closed ended questions including age, sex, marital status, level of education, years of experience, attendance of training program, presence of continuing training centers in hospital for nurses, and presence of open heart guidelines for nurses.

❖ **Part II: <u>Nurses knowledge about open heart surgery:</u>**

It was developed by the researcher to assess nurse's knowledge about open heart surgery. It consisted of 49 closed ended questions, which was divided into five parts:

- anatomy and physiology of the heart

- General Knowledge about open heart surgery

- Nursing management / intervention for patients with open heart surgery

- Infection control polices/precautions

- Health education for patients with open heart surgery

Scoring system for nurse's knowledge:

Scoring system was graded according to the items of interviewing questionnaire sheet; the answers of respondent (nurses) were evaluated using key answer prepared by the researcher. The total score of the knowledge was (98) grades, (100%). Each correct answer was scored two (2) grades, and zero for wrong answer or did not know. The total knowledge classified as the following:

➢ Satisfactory   ≥ 75%

➢ Un satisfactory   < 75%

<u>Tool II: Observational checklist of nurses' practices for patients with open heart surgery:</u>

It was developed by the researcher to assess nurses' practice during caring for patients undergoing open heart surgery. The tool covered all procedures about nursing for patients with open heart surgery, which was divided into pre-operative and post-operative nursing care phases. It includes the following:

1- Preoperative nursing care of patients undergoing open heart surgery (3 items with 19 subtitle)

2- Postoperative nursing care of patients undergoing open heart surgery (11 items with 112 subtitle)

Scoring system of nurse's practices regarding open heart surgery care:

Each step in the observational checklist sheet was checked as satisfactory done and unsatisfactory done. The total score of all practices (nursing activities) was 131 grades. Unsatisfactory practice pointed out the procedure which done incorrectly or not done to score grade zero (0) respectively, and the practice that done correctly take score one (1) grade. The total score of all practices was classified as the following:

⤒ Satisfactory $\geq 75\%$

⤒ Unsatisfactory $< 75\%$

 (II)- Operational Design:

The operational design consisted of preparatory phase, content validity, pilot study, field work, operational definitions, and limitation of the study.

Preparatory Phase:

It included reviewing of literature and theoretical knowledge of the various aspects of this issue using books, articles, internet, and magazines in order to develop the data collection tools.

Content Validity:

Test validity was used for the modified tools and the designed booklet to determine whether the tools cover the aim. The stage developed by a Jury of nine experts from medical and nursing staff, five from port said university (they were one professor of general surgery from faculty of medicine, one assistant professors, and three lectures of medical-Surgical Nursing from the Faculty of Nursing), three from Mansoura University (They were two professors of medical surgical nursing, faculty of nursing and one lecture of cardiothoracic surgery from faculty of medicine), and one from Aswan university, lecture of medical surgical nursing from faculty of nursing.

Testing reliability of the proposed tools was done by Cronbach's alpha test, showed high reliability for the final version of knowledge **(.888)**, and the final version of practice (**.892**).

Pilot study:

The pilot study was applied on 3 nurses (10%) of the study sample with the selected criteria to test the applicability of tools, arrangement of items, and estimate the time needed for each sheet. Nurses included in the pilot study were excluded from the study group after modification of the tools.

Field Work:

The study was implemented and evaluated by the researcher through 9 months from the beginning of Juan 2015 to the end of February 2016, over three days per week (Saturday, Monday, and Wednesday) during morning and afternoon shift through the following four phases:

Phase I: Prior and during training program development: The study protocol was approved and an official permission to carry out the study was obtained from pertinent authorities after explanation of its purpose.

Structured interview was conducted individually for nurses eligible for the study in order to explain the purpose of the study, assure confidentiality and to obtain oral consent.

Based on the information obtained from pilot study, in addition to literature, the researcher designed the instructional program. It included the following items; brief description of heart anatomy and physiology and open heart surgery (definition, types, indications, complications, and nursing care before, during, and after surgery), Devices connected to the patient and nursing role toward it, infection control precautions, and health education of patients. The instructional booklet was written in simple Arabic language with different illustrated colored pictures to enhance the learning process and facilitate nurses understanding.

Phase 2: Pre-test phase (prior training program implementation): after preparing the tool, the researcher interviewed the nurses individually in the cardiothorathic department after introducing herself and took the consent of them to be recruited in the study after explaining the aim of the study and then distributed the pre- tested questionnaire sheet after clear explaining the way to fill out. The researcher used tools; (1) A structured interviewing questionnaire sheet (time allowed: from 30 - 60 minutes for each nurse), Then the nurses were asked to write down their answers, and tool (2) Observational checklist of nursing

practices for patients with open heart surgery which information was collected by the researcher.

Phase 3: Implementation phase: the training program the studied nurses were divided into six groups each group consisted five nurses, then each group was gathered at a conference room separately, the session was taken at available time to the gathered group which was during the working shift, time available for nurses working at the early shift was 12.5 – 1.15 pm & at the late shift 2.30 – 3.15 pm. The program was conducted through sex sessions which was implemented for six weeks at a rate of one session a weekly. Each session took 45 minutes per day. **First session** about (anatomy and physiology of the heart), **second session** about (definition, types, indications and complications of open heart surgery), **third session** about (Proper nursing care before, during, and after open heart surgery), **fourth session** about (Devices connected to the patient and nursing role toward it), **fifth session** about (definition of infection and nosocomial infection, factors, signs and symptoms of infection, infection control measures), **sixth session** about (health instructions necessary for patients with open heart surgery). Different teaching and learning methods were used during the sessions which included; interactive lecture, discussion, demonstration & re demonstration, instructional media included pictures, videos, power point and printed handout which was presented in clear and concise form to be used as memorial reference by using a very simple Arabic language. Nurses were allowed to ask any interpretation, elaboration or explanation of any item included in the sessions.

Phase 4: Evaluation phase (post-test & follow- up tests): Each nurse in study group was interviewed immediately in the cardiothorathic department at Mansoura University hospital, after applying the training program sessions to assess his or her knowledge and practice using the study tools I and II (post immediate test). Then, after 3 months from applying the training program sessions, the evaluation of the studied subject were done to determine the impact of training program on nurse's knowledge and practice regarding open heart surgery by using the study tools: I and II (follow up test).

 (III)- Administrative Design:

Ethical Consideration:

All relevant ethical aspects were considered for ensuring nurses privacy and confidentiality of the collected data during the study. The purpose of the study was

explained to each nurse, and then an oral consent for participation in the study was obtained from each one of them. Voluntary participation and right to refuse to participate in the study and withdrawn at any time was emphasized to nurses.

(IV)- Statistical Design:

All collected data were organized, categorized, tabulated, entered, and analyzed by using computer SPSS, (Statistical Package for Social Sciences), soft-ware program version 19, which was applied to frequency tables, statistical significance and associations were assessed using X2: Chi-Square test, Mac Nemar Test (P- value), FEP Fisher's Exact Test (P- value), and Spearman Rho Correlation Coefficient Test to detect the relations between the variables, mean, and standard deviation were also used.

Significance of results was as the following:

- Significant (S) $p \le 0.05$
- Non-significant (NS) $p > 0.05$

RESULTS:

Table (1): portrayed that, about 63.3% of the studied nurses were in age group of 20 - <30 years with mean age ± SD = 24.9 ± 4.7. Regarding the level of education of the studied nurses, it was found that, 40.0% of them had secondary nursing school. Concerning the years of experience, it was found that 66.7% of the studied nurses had 1-2 years of experience with mean ± SD = 2.4±1.2. Relating to previous training program on open heart surgeries, center for nurses training in the hospital, and presence of guidelines about nursing care, it was found that all of the studied nurses did not have previous training center for nurses training in the hospital or guidelines for nursing care.

Table (2): depicted that, there was no statistically significant relation between nurses' age and their total knowledge scores at pre, post phase and follow up. Regarding educational level, the same table showed that, there was a statistically significant relation between nurses' educational level and their total knowledge scores in pre and post phase and a statistically significant relation was found in the follow up phase. Concerning the years of experience, the same table revealed a statistical significant

relation at pre and post implementing the training program, as well as there was a statistically significant relation in the follow up phase.

Table (3): illustrated that, there was a statistically significant relation between the age of the studied nurses' and their total practice scores at pre, post, and follow up phases. Concerning educational level, there was a statistically significant relation between the educational level of the studied nurses and their total practice scores at pre, post, and follow up phases. In regard to years of experience of the studied subject there was a statistically significant difference at all phases of the program.

Table (4): pointed out that, nurses' total knowledge score correlated positively with their total practices score in pre, post and follow up phases of implementing the training program.

Figure (1): depicted that 73.3% of the studied nurses were females, where as the rest of the study sample were males.

Figure (2): revealed that (86.7%) of the studied subject were married.

Figure (3): revealed that, 56.7% of the studied nurses in pre test had unsatisfactory knowledge regarding open heart surgery, while in post the implementation of the training program, it was found that (56.7%) of them had satisfactory knowledge, as well as in the follow up phase, the figure showed that (73.3%) had satisfactory improvement in the total knowledge score about open heart surgery with a highly statistical significant difference at all phases of implementing the training program.

Figure (4): revealed that, 66.7% of the studied nurses in pre test had unsatisfactory practice score regarding open heart surgery, while in post the implementation of the training program, it was found that (53.3%) of them had satisfactory practice score, as well as in the follow up phase, the figure showed that (60.0%) had satisfactory improvement in the total practice score with a highly statistical significant difference at all phases of implementing the training program.

Table (1): Frequency Distribution of Nurses According to their Personal Characteristics (n. 30)

Socio-demographic characteristics	Studied nurses (n. 30)	
	n.	**%**
Age group		
Less than 20	7	23.3
20 - < 30	19	63.3
30 - ≤ 40	4	13.3
Mean±SD	**24.9±4.7**	
Educational level		
Secondary nursing school	12	40.0
Technical nursing institute	10	33.3
Bachelor	8	26.7
Years of experience		
1-2	20	66.7
3-4	10	33.3
Mean±SD	**2.4±1.2**	
Previous training on open heart surgeries		
Yes	0	0.0
No	30	100.0
Center of training nurses in the hospital		
Yes	0	0.0
No	30	100.0
having guidelines about nursing care		
Yes	0	0.0
No	30	100.0

Table (2): Relations between Nurse's Knowledge and their Sociodemographic Characteristics: (n. 30)

Sociode`mographic Characteristics	Pre program				Post program				Follow up program			
	Satisfactory (n. 13)		Un satisfactory (n. 17)		Satisfactory (n. 17)		Un satisfactory (n. 13)		Satisfactory (n. 22)		Un satisfactory (n. 8)	
	no.	%	no.	%	no.	%	no.	%	no.	%	no.	%
Age (years)												
Less than 20	1	7.7	6	35.36	2	11.85	5	38.5	4	18.2	3	37.5
20-<30	9	69.2	101	58.8	12	70.6	7	53.8	14	63.6	5	62.5
30-<40	3	23.1		5.9	3	17.6	1	7.7	4	18.2	0	0.0
X^2	4.165				3.124				2.394			
^{MC}P- value	0.130				0.316				0.353			
Educational level												
Secondary nursing school	0	0.0	12	100.0	0	0.0	12	100.0	5	41.7	7	58.3
Technical nursing institute	6	60.0	4	40.0	9	90.0	1	10.0	9	90.0	1	10.0
BSc.	7	87.5	1	12.5	8	100.0	0	0.0	8	100.0	0	0.0
X^2	16.663				26.335				10.483			
^{MC}P –value	<0.0001*				<0.0001*				0.005*			
Years of experience												
1 - 2	3	15.0	17	85.0	7	35.0	13	65.0	12	40.0	8	60.0
3 – 4	10	100.0	0	0.0	10	100.0	0	0.0	10	0.0	0	100.0
X^2	16.03				13.03				0.689			
^{FE}P –value	<0.0001*				<0.0001*				0.029*			

(*) Statistical significant difference at P≤0.05 X^2: Chi-Square Test ^{MC}P: Monte Carlo corrected P-value

^{FE}P: Fisher's Exact Test

Table (3): Relations between Nurse's Practice and their Sociodemographic Characteristics: (n. 30)

Sociodemographic Characteristics	Pre program				Post program				Follow up program			
	Satisfactory (n. 13)		Un satisfactory (n. 17)		Satisfactory (n. 16)		Un satisfactory (n. 14)		Satisfactory (n. 18)		Un satisfactory (n. 12)	
	no.	%	no.	%	no.	%	no.	%	no.	%	no.	%
Age (years)												
Less than 20	1	10.0	6	30.0	1	6.3	6	42.9	2	11.1	5	41.7
20-< 30	6	60.0	13	65.0	12	75.0	7	50.0	124	66.7	7	58.3
30-≤ 40	3	30.0	1	5.0	3	18.7	1	7.1		22.2	0	0.0
X^2	4.294				5.780				5.627			
^{MC}P –value	0.142				0.068*				0.066*			
Educational level												
Secondary nursing school	**0**	0.0	12	100.0	0	0.0	12	100.0	1	8.3	11	91.7
Technical nursing institute							2	20.0				
BSc.	**6**	60.0	4	40.0	8	80.0	0	0.0	9	90.0	1	10.0
	7	87.5	1	12.5	8	100.0			8	100.0	0	0.0
X^2	12.450				23.571				22.431			
^{MC}P –value	0.001*				<0.0001*				<0.0001*			
Years of experience												
1 - 2												
3 – 4	17	85.0	3	15.0	6	30.0	14	70.0	8	40.0	12	60.0
	0	0.0	10	100.0	10	100.0	0	0.0	10	100.0	0	0.0
^{FE}P –value	<0.0001*				<0.0001*				0.002*			

**(*) Significant at P≤0.05**   **X^2: Chi-Square Test**   **^{MC}P: Monte Carlo corrected P-value**

^{FE}P: Fisher's Exact Test

Table (4): Correlation Co-efficient between the Total Knowledge of Nurses Score and their Total Practice Score at Pre, Post and Follow up: (n. 30)
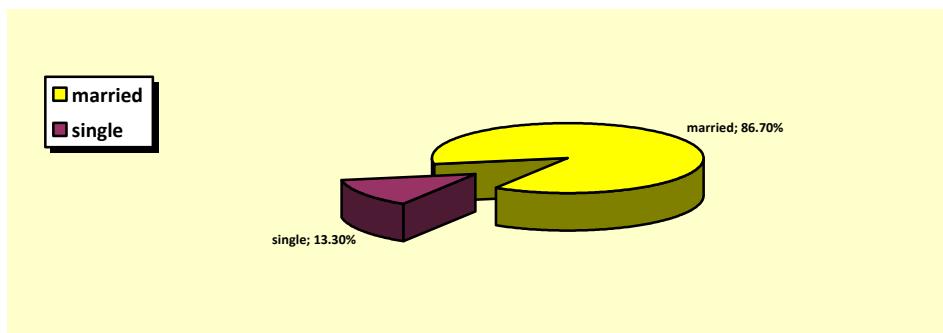
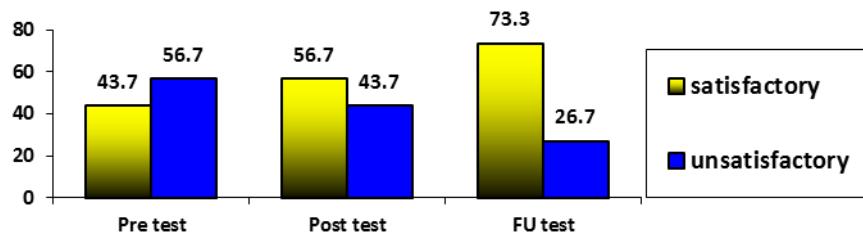|	Knowledge of nurses					
	pre program		Immediately post		Follow up	
	R	P	R	P	R	P
Practice score	0.882	<0.0001*	0.907	<0.0001*	0.925	<0.0001*

(*) Significant at P≤0.05   **r: Spearman Rho correlation coefficient   p: pvalue**
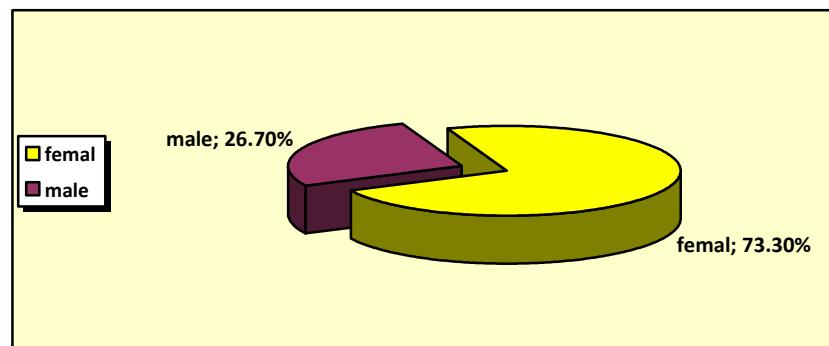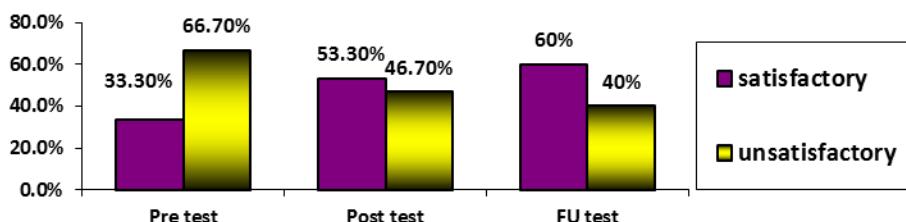

Figure (1): Frequency distribution of nurses according to their gender (n. 30):

Figure (2): Frequency Distribution of Nurses According to their Marital Status (n. 30):

Figure (3): Frequency Distribution of Nurses According to their Total Knowledge Score at Pre, Post and Follow Up Phases of the Training Program: (n. 30)

Figure (4): Frequency Distribution of Nurses According to their Total practice Score at Pre, Post and Follow up Phases of the Training program: (n. 30)

DISCUSSION :

The study findings revealed that, less than three quarter of the nurses' age ranged between 20-30 years. Near to three quarters of them are females, married and less than one half of them have secondary nursing school of education. These findings are in accordance with ***Omran, 2010,*** who found that, the majority of nurses were 30 years old, married, females and hold diploma degree.

Around two thirds of the study nurses have 1-2 years of experience. This finding contrasted with ***Hafez, 2014,*** who found that, the majority of nurses had (6-10) years of experience. These differences were due to recent building up of cardiothoracic department in the hospital.

 Regarding previous training courses on open heart surgery, presence of training nurses centers in the hospital, and hading of guidelines for nursing care, the study showed that, all of them never been introduced to any kind of learning or training courses or guidelines related to open heart surgery except the experience they gain throughout their work with their colleagues.

Similarly ***Omran, 2010,*** who found that, most of nurses didn't receive training program. ***Cuddy, 2015 & Rawlins, 2007,*** mentioned that, an orientation program and training were essential for nurses and as pointed out by ***Finkelman and Kenner, 2013,*** that an in service educational program is always updating nurses knowledge, improving staff development and skills, also acquiring the ability to function purposefully in emergency situation. In this respect, ***Delaune and Ladner, 2011***, stressed that, the in service education should be important and should be considered as a cornerstone of total quality nursing care. Moreover, the quality should begin with education and end with education.

The results of the current study revealed that, more than one half of the study subjects had unsatisfactory knowledge regarding open heart surgery as anatomy and physiology of the heart, nursing care, mechanical ventilator, chest tube, CVP, endotracheal tube, infection control, health instructions, and total knowledge score. This lack of knowledge affected negatively on the nursing care provided for patients. Additionally, it might lead to complications among the patients and that may lead to several problems to the nurse providing the care.

This result may be due to that, there was around two third of the studied nurses have one to two years of experience. Moreover, there was no center or source for acquiring knowledge whether from doctors, head nurses, nor attending training courses and even no guidelines or any protocol of nursing intervention about care of patients with open heart surgery. These findings were supported by ***Hafez, 2014*** who found that, most of the studied subject had insufficient knowledge regarding patients restrained before the program implementation.

From the investigator point of view, continuous education, evaluation and presence of posters, guidelines in different open heart surgery units it was very important to increase the knowledge and performance of the nurses about heart surgeries. The opinion of the investigator agreed with the finding of the study done by ***Eustace, 2014*** who concluded that continuing education for nurses continues to be a viable means by which nurses can remain competent in the face of ever increasing knowledge and technology in the health care setting. It helps the nurses to remain competent and advance in their fields of practice.

Significant improvements are demonstrated at the post-program phase as it was noticed that, less than two third of the nurses had satisfactory knowledge regarding

open heart surgery nursing care. This result reflected that these nurses were in real need for such information. Moreover, the acquired knowledge was retained with declines throughout the three-month follow-up, when it found that, majority of the nurses still had sufficient knowledge regarding open heart surgery nursing care. The effect of the intervention was confirmed through multivariate analysis that identified the program attendance as a strong positive independent predictor of the knowledge score. The further finding indicates that, the nurses continually use their knowledge and apply it to their daily practice, which helped recalling and memorization.

Our findings are in accordance with *Hafez, 2014*, who stated that, an improvement in nurses' knowledge sustained after implementing their educational endeavor.

The improvement in nurses' practices after the intervention was also noticeable since their practices before implementation of the training program were even worse corresponding to knowledge. There were more than three quarters of the nurses have unsatisfactory practice at the pre-program phase. While there was a significant improvement demonstrates at the post-program phase when it finds that more than half of the nurses have satisfactory practice regarding open heart surgery nursing care. Like knowledge, the adequate practice continues throughout the follow-up phase and the attendance of the program is the only independent predictor that positively influences the practice score.

Taha and Ali, 2013, were in agreement with our findings, reported that, there was a positive significant improvement in nurses' practices after program intervention this improvement continued and extended even after two months. The findings of the current study as well as this one highlight the need to provide short-term in-service education programs in acute care settings.

According to the present study finding, there was no statistical significant difference between nurses' age with their knowledge and practice. This result was in agreement with *Malek, 2013,* who found that, there was no statistical significant relation between nurses' age with their knowledge. On the same line *Alomari, et al., 2012,* who reported that, there was no statistical significant difference between nurses' age with their practice. However this result is in contrast with *Malek, 2013 & Abdelaziz, et al., 2011,* who revealed that, there was positive correlation between nurses' knowledge and age.

On the other hand, nurses' educational level and years of experience have an influence on their knowledge and practice improvements. On the same line ***Elmagied, 2012,*** who revealed that, there was statistical significant difference between years of experience of the nurses and nurses' practice.

This result may be due to the existed interaction between nurses and patients in the hospital which gave the nurses chance to gain more knowledge and to have abetter practice regarding nursing care for patients with open heart surgery and also indicates that the training program was beneficial to nurses. This result disagred with ***Malek, 2013 & Sayed, 2012,*** who found that, nurses' experience and educational level had no influence on their knowledge and practice scores improvements.

Regarding correlation between nurses' knowledge and their practice, it was found that, there was an extremely statistical significant relation between total nurses' scores of knowledge and practice. This is certainly due to the impact of the training program which improved nurses' knowledge and practice. Nurses' knowledge and practice scores turned to be strongly and positively correlated. In fact this is an objective proof of the success of the program intervention and the authenticity of our question.

This result goes in the same line with ***Malek, 2013,*** who stated that, there was positive correlation between nurses' knowledge and their practice. However, this result disagrees with ***Marouf, et al., 2012***, who stated that, there was no statistically significant correlation between nurses' knowledge and practice

CONCLUSION:

Based on study findings, it can be concluded that: the majority of nurses working in cardiothorathic department at Mansoura university hospital had average level of knowledge regarding open heart surgery, while about two third of the nurses study had satisfactory practice provided to open heart patients. It is obvious from the present study findings that, the training program have a significant improvement of nurses' knowledge, and practice of nurses.

RECOMMENDATIONS:

Continuous training programs should be organized for the nurses and especially for newly jointed nurses to improve their knowledge and practice regarding cardiac surgery. Maintaining an educational booklets, pamphlets, and boosters that contain all

instructions and information about open heart surgery in the cardiothorathic department. Nurses working with cardiac patients should be theoretically prepared with the principles of caring for cardiac patients and shoud be well trained for the specialized procedures needed for patients care.

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تأثير برنامج تدريبي تجاه العناية بالمرضي الخاضعين العمليات القلب المفتوح علي أداء الممرضين

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الـــخـــلاصـــة

جراحة القلب المفتوح هي أشهر إلإجراءات التدخلية لعلاج مرض نقص تروية القلب وأمراض صمامات القلب الذي يكون مصحوبا برعاية بعد الجراحة .المؤشر الرئيسي لتقييم جودة الرعاية التمريضية هو رضا المرضي عن الخدمة المقدمة لهم التي يعتقدون أن يتلقوها و التي يجب تحقيقها أثناء فتره العلاج بالمستشفي .وبالنظر إلى الهدف من هذه الدراسة فان هدفها هو تقييم تأثير البرنامج التدريبي على أداء الممرضين فيما يتعلق برعاية المرضى الذين يخضعون لجراحة القلب المفتوح وقد تم إختيار عينة ممثلة من ٣٠ ممرض. تم إستخدام أداتان لجمع البيانات؛ إستمارة إستبيان الممرضين، وإستمارة ملاحظة ممارسات الممرضي تظهر النتائج أن هناك تحسنا كبيرا في المعرفة والممارسات المتعلقة بجراحة القلب المفتوح بعد تنفيذ البرنامج التدريبي للرعاية التمريضية لمرضي جراحة القلب المفتوح ,كما أن هناك علاقة طردية بين معرفة الممرضين و ممارسة الرعاية التمريضية في كل مراحل تنفيذ البرنامج التدريبي .ومن ثم خلصت الدراسة إلى أن البرنامج التدريبي الذي تم تطبيقه كان له أثر إيجابي علي تحسن مستوي المعرفة والممارسات المتعلقة بجراحة القلب المفتوح لدي الممرضين .وأوصت الدراسة :أنه ينبغي تنظيم برامج تدريبية مستمرة للممرضين وخاصة الجدد منهم لتحسين معرفتهم وممارستهم فيما يتعلق بالرعاية التمريضية لجراحة القلب المفتوح.

الكلمات المرشدة : جراحة القلب المفتوح، الأداء التمريضي، البرنامج التدريبي