Evaluate Nurses' Performance regarding Safety Measures in Cardiac Catheterization Unit at Benha University Hospital and Suggested Guidelines

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Abstract

Background: Improving nursing knowledge and practice regarding safety measures is very essential that can achieve through developing standards of cardiac catheter nursing intervention, clear identification of deficiencies in provision of care and increasing nurses' awareness regarding their vital role in saving patient life through safe practice **Aim:** This study aimed to evaluate nurses' performance regarding safety measures in cardiac catheterization unit. **Design:** Descriptive research design was utilized. **Setting:** This study was conducted in cardiac catheterization unit, at Benha University Hospital. **Sample:** A convenience sample of 40 cardiac nurses from both sex were involved in the current study. **Tools:** Three tools were used**, I:** Structured interviewing questionnaire to assess nurses' knowledge regarding safety measures, **II:** Safety measures observational checklist to assess nurses' practice and **III:** Safety attitude questionnaire sheet to assess nurses' attitude. **Results:** 60% of studied nurses had unsatisfactory level of total knowledge about safety measures and 75% of studied nurses had incompetence level of total practice about safety measures in cardiac catheterization unit, while 77.5% of the studied nurses had positive attitude towards safety culture in cardiac catheterization unit. **Conclusion:** The nurses' performance was unsatisfactory regarding to safety measures. There was highly statistically significant relation between total nurses' knowledge, practice and attitude of studied nurses and demographic characteristics such as educational level , years of experience and attendance of training courses at (P= < 0.01). **Recommendations:** Future study should be conducted to evaluate effect of an educational program regarding safety measures on nurses' performance.

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Key words: Cardiac catheterization, Nurses' performance, Safety Measures, Suggested guidelines.

Introduction

Cardiac Catheterization (CC) is one of the most diagnostic and interventional tools and considered a today's gold standard for evaluating the heart problems. The decision to recommend cardiac catheterization is based on an appropriate risk the benefit ratio. CC is a medical procedure that cardiologists or heart specialists use to evaluate heart function and diagnose cardiovascular conditions. CC is performed to measures blood pressure, blood flow to the heart, the level of oxygen in the blood, blood samples and a biopsy of heart muscle during the procedure **(Shaik et al., 2020).**

Cardiac catheterization done for check narrow or blocked blood vessels that could cause chest pain, measure the amount of oxygen in the heart (hemodynamic assessment). Evaluate and determine the need for further treatment. Also, it is performed in hospital by a cardiologist and a team of doctors, nurses, technicians and other medical professionals **(Stacy, 2019).**

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Safety measures defined as a variety of practices that aid in the reduction of accidents and cases of occupational hazards or diseases. Many hospital take occupational health safety very seriously and continuously put safety measures in place to enhance its practice. Although these hospitals seek to follow the regulations, guidelines, and procedures outlined by the international standard organization, there are still cases of injuries and accidents. A part of occupational health safety is training of health staff in suitable protective practices and safety at the workplace (**Abrahamsen et al., 2020).**

Maintaining safety measures during CC is fundamental for early identification and management of complications. Nurses who are able to promptly identify complications are in the optimal position to prompt critical action and improve patient outcomes. Thus, nurses that are competent in the care of patient during CC are able to minimize mortality and morbidity rates for these patients who perform this procedure in cardiac catheterization unit (**Coomes et al., 2020).**

Nurses play an important role in ensuring patient safety due to the nature of their work, which includes ongoing patient monitoring and care coordination. Moreover, nurses are probably the first people who observe safety issues and provide high-quality care in their organizations. Therefore, there is convincing evidence that nurses are reliable reporters of information to assess patient safety outcomes, including adverse events (**Rahman et al., 2020**).

Aim of the study
This study aimed to evaluate nurses' performance regarding safety measures in cardiac catheterization.

Research questions:
1. What is the level of nurses' knowledge related to safety measures in cardiac catheterization?
2. What is the level of nurses' practice related to safety measures in cardiac catheterization?
3. What is the level of nurses' attitude related to safety culture in cardiac catheterization?
4. What is the correlation between knowledge, practice and attitude of nurses related to safety measures?

Subjects and Methods

Research design:
Descriptive research design was utilized to conduct the aim of this study.

Setting:
The study was conducted at the cardiac catheterization unit at Benha University Hospital. The cardiac catheterization unit locates in the first floor of the medical building. There are two cardiac catheter laboratories in the unit supported by equipment and X-rays devices and there are another four rooms in the unit which are nursing room, physicians' room, patient preparation room and recovery room.

Sample:
Convenient sample of all available nurses (40) nurse from both sex who were working at mention setting during the time of data collection and agree to participate in this study

Tools of data collection:
There are three tools were used to collect data for this study.

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Tool I: - Structured interviewing questionnaire:

This tool was developed by the researcher after reviewing related literature such as **Raymond, (2017) and Abrahamsen et al., (2020).**This tool was used to assess nurses' knowledge regarding safety measures in cardiac catheterization unit. It is presented in simple Arabic structure items related to different aspects. It consisted of two parts: -

Part I: - The nurses' socio-demographic characteristics:

This part was conducted to identify of nurses' demographic characteristics such as age, sex, the educational level, marital status, and years of experience in the cardiac catheterization unit, attending training courses related to safety measures.

Part II: The nurses' knowledge Assessment:

This part was conducted to assess the studied nurses' level of knowledge related to safety measures in the cardiac catheterization unit, it was in the form of multiple-choice question, which included two parts:

I- The nurses' knowledge about nursing management during cardiac catheterization which included:

A- Nurses' knowledge about nursing management regarding cardiac catheterization which included:

- Nurses' general knowledge about cardiac catheterization (9 questions).
- Nurses' knowledge about the role of nurses before, during and after cardiac catheterization (11 questions).

B-The nurses' knowledge about the safety measures and standard precautions for infection control which included:

- Nurses' knowledge about patient safety measures (8 questions)
- Nurses' knowledge about infection control measures (9 questions)
- Nurses' knowledge about environmental safety measures (4 questions)

Scoring system:

The score distributed as: each correct answer was given one mark and each incorrect answer was given zero. With total knowledge scores ranged from 0 to 41.

The knowledge score converted into percentage and categorized into:
- ≥ 80% (≥33score) graded as satisfactory level of knowledge.
- < 80% (< 32score) graded as unsatisfactory level of knowledge.

Tool II: Safety measures observational checklist

This tool was designed by the researcher after reviewing related literature such as **feroze et al., (2017); Reason, & Hobbs, (2017); Wasserman et al., (2018].** This part aimed to assess the nurses' practices regarding safety measures in cardiac catheterization unit it includes three parts:

A-Patients' safety measures which included: -

- Nursing care before cardiac catheterization procedure (13 steps).
- Nursing care during cardiac catheterization procedure (5 steps).
- Nursing care after cardiac catheterization procedure (15 steps).

- Drug administration safety measures (8 steps)
- Prevention of medication errors(MEs) (10 steps)
- Blood transfusion in cardiac catheterization unit which included (21 steps).

B- Nurses' safety measures which included

infection control measures to protect nurses from infection such as:

- Hand washing (20 steps),
- Wearing the personal protective clothes (8 steps)
- Cleaning and disinfection (2 steps)
- Personal hygiene (4 steps)
- Healthy behavior (4 steps)
- Discard the solid materials (4 steps)
- Discard needles in sharp container (5 steps)
- Handling linen (2 steps)
- Radiation exposure hazard (3 steps)
- Musculoskeletal injury hazard (4 steps).

C-Environmental safety measures which included:

- ☒ Mechanical safety (3 items)
- ☒ Thermal safety (4 items)
- ☒ Electrical safety (1item)
- ☒ Bacteriological safety (2 items)
- ☒ Chemical safety (2 items).

Scoring System:

Practice score for each practice was given as follows:

  1 = Done
  0 = Not done
  Total score 0 - 140 score

- The total practices were considered Competence if the score of the total practices ≥ 80% (≥112 score).
- The total practices were considered incompetence if the score of the total practices < 80% (<112 score).

Tool III: Safety Attitudes Questionnaire Sheet (SAQ):

The Safety Attitudes Questionnaire (SAQ) was developed by **Sexton et al., (2000),** and was used to measure safety attitude for nurses. It included six domains; team work (6 items), safety climate (7 items), job satisfaction (5 items), stress recognition (11 items), perception of management (5 items), and working conditions (8items).

Scoring system:

Scoring system was using a Likert scale to score (Disagree=1, Neutral =2, Agree =3). With total score 126 score

The score of the items was summed-up and the total divided by the number of the items, giving a mean score for the part. These scores were converted into a percent score. The attitude was considered as: Positive attitude if the score of total attitudes ≥ 60% (≥76score) negative attitude if it is <60 % (<76 score).

Nurses' guidelines: It was developed by the researcher after reviewing the related literature and according to the nurses' needs regarding to safety measures in cardiac catheterization unit. it included two main parts (theoretical and practical); **the theoretical part** included; the meaning of (safety measures, safety measures for patients, safety measures for medical staff, environmental safety in cardiac catheterization unit). cardiac catheterization types, contraindications ,complications and the risks of cardiac catheterization, the nursing care before, during and after cardiac catheterization, and nursing instructions for patient post cardiac catheterization, while **the practical part** included; the infection control practices such as hand washing, the use of personal protective equipments, the process of cleaning, disinfection and sterilization, controlling the

environment, how to prevent radiation danger and structural strikes, the general safety measures in hospitals, and the environmental safety measures in the cardiac catheterization unit.

Ethical considerations:

- Oral consent was obtained from the studied nurses in order to participate in the study.
- The aim of the study explained to all nurses, and they were reassured that all information will be confidential, and it will be used only for their benefit and for the research purpose.
- The studied nurses also informed that they are allowed to choose to participate or not in the study and they have the right to withdraw from the study at any time without any reasons giving.
- The research tools will not cause any harm for participants
- Permission to carry out the study from responsible authorities in the faculty of nursing at Benha University and hospital administration personnel.

Pilot study:

A pilot study was conducted on 10% from the total number of the studied nurses (4) and they were included in the study. The pilot study was aimed to assess the feasibility, clarity, and applicability of the tools also to determine the time needed for filling the structured questionnaire. According to the results obtained from data analysis, the modifications, correction, omission and addition were done. The tools lasted about 30 minutes to be filled.

Field work:

- Reviewing all available recent local and international related literature and exploring websites concerning the topics of the study, using textbooks, evidence-based articles and related literature such as National Heart, Lung, and Blood Institute guidelines, (2020).
- Developing a structured questionnaire format for knowledge in order to assess nurses' knowledge regarding safety measures
- Measuring tools of subjective and objective outcomes was tested for validity and reliability.
- Before conducting the study, an exploratory visit was done to the cardiac catheterization unit at Benha University Hospital in order to estimate total number of nurses and suitable time for collecting data
- Interviewing with nurses before starting data collection procedure was conducted to establish a good relationship with them, explain the aim and nature of the study was done for them.
- The study was conducted over a period of 6 months which started from the beginning of July 2020 to the end of December 2020; data were collected by interviewing the studied nurses in the cardiac catheterization unit at Benha University Hospital.
- Data collected at morning and afternoon shifts (long day shift) three days/week. Assessment of the nurses' practical skills through observational checklist (Tool II) was done by the researcher at time of preparation, during and post cardiac catheterization, medication administration, and blood transfusion procedure the researcher was observing nurses' practical skills about compliance of infection control

measures and environmental safety measure and the time required for completion of the observational checklist was ranged from 20-25 minutes.

- Assessment of the nurses' knowledge through structured interviewing questionnaire (Tool I) was given to each nurse to fill it and time required for completion of the questionnaire was ranged from10-20 minutes.
- Nurse's attitude assessment sheet given to each nurse to fill it and time need about 5-10 min.

Tool validity

Content validity of the suggested tools was done by a jury of five experts in Medical Surgical Nursing department in Faculty of Nursing Benha University to determine whether the included items are clear and suitable to achieve the aim of the current study. Their opinions elicited regarding the format, layout, consistency, accuracy, and relevancy of the tools. Jury experts include one professor, two assistant professors and two lecturers in Medical Surgical Nursing department (n=5).

Tool reliability

Reliability of the tools was done by using Alpha Cronbach's coefficient test which revealed that each of the three tools consisted of relatively homogenous items as indicated by high reliability for each tool. The internal consistency of the tools was as the following: 0.869 for first tool and 0.807 for third tool)

Statistical analysis:

Statistical analysis was done by using Statistical Package for Social Sciences (SPSS) version 22. Data were collected, revised, coded, organized, tabulated, and analyzed using frequencies, number, percentage, mean

scores, standard deviation. Data were presented in the form of tables and figures. Quantitative data was presented by mean ($\overline{X}$) and standard deviation (SD). Qualitative data was presented in the form of frequency distribution tables, number and percent. It was analyzed by Chi- square test (X^2) to detect the relation between the variables of the study (P-value).

Statistical significance was considered as follows:

- P-value > 0.05   Not significant
- P-value < 0. 05   Significant
- P-value < 0.001   Highly significant

Results

Table (1): Shows that, 85% of the studied nurses their age ranged between 20 ≤ 30 years, with Mean ±SD of age was 26.57 ± 5.37 year. As regard to educational level, 42.5% of them had technical institute of nursing. Also, 50% of them were single. Likewise, 62.5% of the studied nurses their years of experience in the cardiac catheterization unit were < 5 year, with mean SD 6.12 ± 4.71 year. Also, 57.5% of the studied nurses not attended training courses related to the safety measures in the cardiac catheter unit.

Table (2): Shows that, 67.5% of the studied nurses had satisfactory level of total knowledge regarding the general knowledge about cardiac catheterization. While, 62.5% and 67.5% of them had unsatisfactory level of total knowledge regarding nursing management for cardiac catheterization procedure and nurses' knowledge regarding safety measures.

Table (3): Stated that, (80% & 90%) of the studied nurses had   incompetent level of total practice **regarding** to practical skills before,   during   and   after   cardiac catheterization procedure, and environmental safety measures respectively,   while (30%)

had competent level of total practice regarding to infection control measures.

Table (4): Shows that, more than three-quarters (85% and 77.5%) of the studied nurses had positive attitude towards teamwork climate and working condition, while the majority (82.5% and 80%) of the studied nurses had negative attitude towards stress recognition and perceptions of management, respectively.

Table (5): Illustrate that, there was highly significant positive correlation between nurses' knowledge and their total practice regarding safety measures in cardiac catheterization unit at (P= < 0.01).while, there was significant negative correlation between nurses' attitude and their total knowledge and practice regarding safety measures in cardiac catheterization unit at (P= < 0.05).

Table (1): Frequency distribution of studied nurses regarding to their socio demographic characteristics (n=40)

Items	N	%
Age (year)		
20-<30	34	85
30-<40	4	10
41+	2	5
Mean S.D 26.57 ± 5.37		
Gender(sex)		
Female	23	57.5
Male	17	42.5
Educational level		
Nursing Diploma	8	20
Technical Institute of nursing	17	42.5
Bachelor degree of nursing	14	35
Post graduate	1	2.5
Marital Status		
Single	20	50
Married	17	42.5
Divorced	3	7.5
Years of experience in the cardiac catheterization unit		
< 5	25	62.5
5 - <10	10	25
10<15	3	7.5
≥ 15	2	5
Mean S.D 6.12 ± 4.71		
Training courses related to the safety measures		
Yes	17	42.5
No	23	57.5
If yes, How many training courses? (n=17)		
One	13	76.5
Two	3	17.6
Three and more	1	5.9

Table (2): Number and percentage distribution of the studied nurses according to total knowledge domains (n=40).

Items	Satisfactory		Unsatisfactory	
	N	%	N	%
General knowledge about cardiac catheterization	27	67.5	13	32.5
Nurses' knowledge about nursing management before, during & after cardiac catheterization procedure	15	37.5	25	62.5
Nurses' knowledge about the safety measures and standard precautions for infection control	13	32.5	27	67.5

Table (3): Number and percentage distribution of the studied nurses according to total practice domains (n=40).

Items	Competent		In competent	
	N	%	N	%
Nurses' practice regarding to practical skills before, during and after cardiac catheterization procedure.	6	15	34	85
Nurses' practice regarding to drug administration safety measures & blood transfusion.	10	25	30	75
Nurses' practice regarding to infection control measures.	12	30	28	70
Nurses' practice regarding to environmental safety measures.	4	10	36	90

Table (4): Number and percentage distribution of the studied nurses according to total attitude domains (n=40).

Items	Positive		Negative	
	N	%	N	%
Teamwork climate	31	77.5	9	22.5
safety climate	27	67.5	13	32.5
job satisfaction	27	67.5	13	32.5
stress recognition	7	17.5	33	82.5
perceptions of management	8	20	32	80
working condition	34	85	6	15

Table (5): Correlation between total knowledge of the studied nurses and their total practice, attitude regarding safety measures in cardiac catheterization unit.

	Total knowledge		Total Practice		Total attitude	
	r	P	R	P	R	P
Total knowledge			.354	.009**	-.173	.045*
Total Practice	.354	.009**			-.208	.032*
Total attitude	-.173	.045	-.208	.032		

Discussion

Regarding to age of studied nurses, the current study findings reveled that, the majority of studied nurses were within age group that ranged from 20 ≤ 30 years with the mean age 26.57 ± 5.37. From the researcher point of view this may be due to newly graduated nurses in cardiac catheterization units. These results agree with **Bayan, (2018)** who conducted a study on "Nurses' Knowledge Regarding Cardiac Catheterization at General Hospital in Rania City" revealed that almost of the studied nurses were young adults from 26-30 year with mean age 31.5+_7.58. while, there is disagreement with **Rushdy et al., (2016)** who conducted study on "Nurses' knowledge and performance regarding care of patients connected to intra- aortic balloon pump at Cairo University Hospitals" and stated that the majority of the studied nurses were ranged between 30≤40 years.

As regards to qualification or educational level, the current results clarified that more than one third had technical institute of nursing. this findings is consistent with the study done by **Ali et al., (2015)** who conducted study on "Nurses' knowledge and Practice regarding Implantable Device in Egypt" and found that the majority of the

sample had technical institute of nursing, also these current results supported by the results of **Renato, (2018)** who conducted study on "Complication Associated with Cardiac Catheterization Procedure" who found that one third of studied nurses had technical nursing institute.

On the other hand these results is contradicted with results of **Fekry and Abd elwahab, (2020)** who conducted study on "Effect of a construction educational protocol on nurses' knowledge, performance and its effect on patient satisfaction undergoing cardiac catheterization" who revealed that the three quarter of their studied samples had diploma of secondary school. From researcher point of view this contradiction is related to the policy of university hospital at Qaluobiya governorate is placing high quality nurses at intensive care units and special units.

As regards to marital status and gender, the current study results revealed that more than half were female and half of them were single. This finding is on line with that of **Hassan and Aburaghif, (2016)** who conducted study on "Effectiveness of an Educational Protocol on Nurse's Knowledge Concerning Complications of Cardiac Catheterization at Al-Nasiriya Heart Center" who reported that majority of the nursing staff

was female and single. This findings is disagreement with **Schiks et al., (2018)** who conducted study on **"Ambulation After Sheath Removal in Percutaneous Coronary Intervention: a prospective comparison of early vs. late ambulation"** who showed that more than two fifths of studied nurses were males and more than one half of them were single. From the researcher view this may be due to lack of male nursing staff at Benha University Hospital and the female nursing staff more than male staff because the faculty of nursing was accepted female only.

Concerning to years of experience, the study findings reveled that about to third of studied nurses had experience less than five years with the mean years of experience 6.12 ± 4.71. This comes in agreement with **Bayan, (2018)** who approved that more than two third of studied subject had 1-4 years' experience and with **Feroze et al.,(2017)** who studied "Knowledge and Practice of Registered Nurses about Patient Safety after Cardiac Catheterization in Punjab Institute of Cardiology Hospital in Lahore," found that most of nurses less than five years of experience.

Regarding nurses total knowledge scores about safety measures in cardiac catheterization unit the study revealed that more than half (60%) of the studied nurses had unsatisfactory level of total knowledge regarding to safety measures while more than one third had satisfactory level of total knowledge regarding to safety measures. These results were similar to those of **(Thapa and Neupane, 2018)** who conducted study about effect of developing and implementing nursing care standards on nurses performance and outcome of patients undergoing cardiac catheterization ,the study showed that more than two third of studied subject (67%) had unsatisfactory level of nurse's knowledge

about standards safety precaution for patients undergoing cardiac catheterization.

These results were similar to those of **Hassan,(2017)** entitled "Assessment of Nurses Knowledge about Patient Safety after Cardiac Catheterization for Adult Patients in Ibn Al-Biter Specialist Center Cardiac Surgery," who found that more than two third had unsatisfactory level of total Knowledge**.** also**(Thapa and Neupane, 2018)** who conducted a study to assess the impact of teaching program on nurses knowledge concerning intra-aortic balloon pump (IABP) implantation therapy for coronary artery bypass grafting patients at selected hospitals in Dehradum and found that the majority of the studied nurses had reported undequate level of knowledge regarding IABP pre implementing the program

Regarding nurses total practice scores about safety measures in cardiac catheterization unit the study revealed that more than two third (70%) of the studied nurses had incompliance level of total practice regarding to safety measures . these findings supported by the results of done by **Suominen, (2016)** entitled *health care professionals, Knowledge and Attitudes regarding patient safety and skills for safe patient care*who found that there was improvement in safety practice after health care professionals had received training.

The study revealed that, more than three-quarters (77.5%) of the studied nurses had positive attitude towards total attitude towards safety measures in cardiac catheterization unit. While, less than one-quarters (22.5%) of them had negative attitude. these findings supported by the results of done by **Kaynar, et al (2019)** entitled* Attitudes of Respiratory and Cardiac Therapists and Nurses about Measures to Prevent Post cardiac catheterization complication who found more than half of

cardiac nurses had positive attitude toward safety culture to maintain patient safety post cardiac catheterizations.

Concerning the correlation coefficient between total knowledge, attitude and practice scores, the present study revealed that there is positive correlation between total nurse's knowledge and total practice scores at (p<_ 0.000), which means when nurses' knowledge are adequate , the nurses' practice will be improvement. These findings is supported by **Abd El-Aziz, (2008)** who conducted a study on "Educational program for monitoring of Nosocomial bacterial infection control measurements at intensive care unit, Zagazig University hospital . Also, in the same line **El-Sol and Badawy, (2017)** who found that the educational programs about infection control precaution are significantly influenced the participants performance .to conclude , the research questions of the study about nurse's knowledge, practice and attitude regarding safety measures was answered.

Conclusion:

The level of nurses' knowledge regarding to safety measures in cardiac catheterization unit were more than half of them were unsatisfactory. Also, nurses practice was more than two third of them were incompetence regarding steps of safety measures. While more than three quarter of them had positive attitude toward safety measures.

There was highly statistically significant relation between total nurses' knowledge, practice and attitude of studied nurses and demographic characteristics such as educational level and years of experience. There was highly significant positive correlation between nurses' knowledge and their total practice regarding safety measures. while there was negative correlation between nurses' attitude and their total knowledge and practice regarding safety measures in cardiac catheterization unit at (P= < 0.05).

Recommendations:

- ❖ Strict observation of nurses during work and continuous evaluation of their performance
- ❖ Continuous educational and training courses should be implemented for nurses working at cardiac catheterization unit to update their knowledge and practice regarding to safety measures concepts.
- ❖ The study should be replicated on large sample and different hospitals settings in order to detect and generalize the results.
- ❖ Further study should be conducted to evaluate the effect of implementing nursing guidelines regarding safety measures on nurses' performance.

References

Abdel-Aziz E.M. (2008). Educational program for monitoring of nosocomial bacterial infection control measurements at intensive care unit, Zagazig University hospital .Doctorate thesis. Faculty of nursing, Zagazig University.75-83.

Abrahamsen, B., Milazzo, F., Selvik, T., Asche, F., & Abrahamsen, B. (2020): Prioritising investments in safety measures in the chemical industry by using the Analytic Hierarchy Process. Reliability Engineering & System Safety,19(8): 106-118.

Ali, N ;Youssef, W; Mohamed, A; Hussein A. (2015). Nurses' knowledge and practice regarding implantable cardiac devices in Egypt, British Journal of Cardiac Nursing January; 10 (1): 551-7.

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Bayan ,O. Sharif ,D., (2018): Nurses' Knowledge Regarding Cardiac Catheterization at General Hospital in Rania City Kurdistan Journal of Applied Research (KJAR) Print-ISSN: 2411-7684 | Electronic-ISSN: 2411-7706 Special Issue: 2nd International Conference on the Health & Medical Sciences | DOI: 10.24017/science..2.31

BognarA, Barach P, Johnson JK, (2018). Errors and the burden of errors: attitudes, perceptions, and the culture of safety in pediatric cardiac surgical teams. Ann Thorac Surg. 2018;85:1374–81.

Coomes, A., Haghbayan, H. & Cheema, N. (2020). Distal trans radial access for cardiac catheterization: a systematic scoping review. Catheterization and Cardiovascular Interventions, 96(7) :1381-1389.

Feroze, M. Afzal, H. Sarwar, A. Galani,F & Afshan,s. ,(2017): "Knowledge and Practice of Registered Nurses about Patient Safety after Cardiac Catheterization in Punjab Institute of Cardiology Hospital in Lahore, Pakistan," International Journal of Musculoskeletal Pain Prevention, 2(2), pp. 233-238.

Kaynar, A.M., Mathew, J.J. & Hudlin, M.M., et al.(2019): Attitudes of Respiratory and Cardiac Therapists and Nurses about Measures to Prevent Post cardiac catheterization complication: A Multicenter, Cross Sectional Survey Study. Cardio Respiratory Care, vol. 52, no. 12, pp. 1687 – 1694.

Hassan, A. F. (2017). "Assessment of Nurses Knowledge about Patient Safety after Cardiac Catheterization for Adult Patients in Ibn Al-Biter Specialist Center Cardiac Surgery," International Journal of Science and Research (IJSR), 6 (5), pp. 2763-66

Morris JA, Jr., Carrillo Y, Jenkins JM, (2016). Surgical adverse events, risk management, and malpractice outcome: morbidity and mortality review is not enough. Ann Surg. 2016;237:844–51;

Rahman, H., Demir, O. M., Ryan, M., McConkey, H., Scannell, C., Ellis, H., ... & Perera, D. (2020). Optimal use of vasodilators for diagnosis of micro vascular angina in the cardiac catheterization laboratory. Circulation: Cardio vascular Interventions, 13(6): 90.

Raymond, J. (2017). A comparison of degree and diploma nursing students confidence of patient safety competency in Ontario, Canada. Journal of Nursing Education and Practice, 7(8): 93-100.

Renato, (2018)."complication associated with cardiac catheterization procedure" Journal of Physiology-Heart and Circulatory Physiology, 314(2), H255-H267.

Rushdy, T. I., Morsy, W. Y. and Elfeky, H. A. (2016). Nurses' knowledge and performance regarding care of patients connected to intra- aortic balloon pump at Cairo university hospitals Egyptian Nursing Journal: Available: www.elmagla.egy2010@yahoo.com

Shaik, F. A., Slotwiner, D. J., Gustafson, G. M., & Dai, X. (2020). Intra-procedural arrhythmia review of literature. World Journal of Cardiology, 12(6): 269.

Suominen, (2016). "health care professionals , Knowledge , Attitudes regarding patient safety and skills for safe patient care" Journal of Educational Technology-TOJET, 18(1), 15-24.

Stacy, I. (2019). Creating a self learning module for nurses caring for patients undergoing angioplasty and receiving anticoagulation therapy. Submitted in partial fulfillment of the requirements for the degree master's in advanced practice

nursing. Wegmans School of Nursing. St. John Fisher College.

Thapa, R., &Neupane, G. (2018). Intra-Aortic BallonPump Implantation Therapy.International Journal ofRecent Scientific Research, 9(2), 24459-62

تقييم أداء الممرضين فيما يتعلق بمقاييس السلامة في وحدة القسطرة القلبية بمستشفي بنها الجامعي ودليل إرشادي مقترح

ولاء السيد خليل – صباح سعيد محمد – سماح السيد غنيم

تشير مقاييس السلامة في وحدة القسطرة القلبية إلى حماية المرضى والعاملين بها في مجال الرعاية الصحية من المخاطر والحوادث التي قد تحدث للمريض أثناء إجراء القسطرة القلبية أو الممرضات أثناء العمل ولذلك يجب الالتزام بمقاييس السلامة للحفاظ علي المرضي وعلي التمريض وعلي البيئة التي يعملون بها، لذلك هدفت هذة الدراسة الي تقييم أداء الممرضين فيما يتعلق بمقاييس السلامة في وحدة القسطرة القلبية بمستشفي بنها الجامعي ووضع دليل إرشادي مقترح. وقد أجريت هذة الدراسة في وحدة القسطرة القلبية بمستشفى بنها الجامعي علي ٤٠ ممرض وممرضة. حيث كشفت النتائج أن هناك علاقة ذات دلالة إحصائية بين معلومات، ممارسات وسلوك الممرضين والخصائص الديموغرافية لديهم في المؤهل وعدد سنوات الخبرة. كما أوصت الدراسة بإجراء دراسة مستقبلية لتقييم تأثير الارشادات التمريضية فيما يتعلق بمقاييس السلامة على أداء التمريض.