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Informational Needs for Nurses Regarding Cardiac Catheter Ablation: (Gap and Support)

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Abstract
Background: Cardiac catheter ablation has emerged as a promising therapeutic approach for both conduction disorders and cardiac arrhythmias. As patients undergo this procedure, nurses play a pivotal role in a wide range of responsibilities and tasks. It is crucial to increase nurse practice and understanding of cardiac ablation. **Aim:** To assess informational needs regarding cardiac catheter ablation and to provide knowledge support to nurses regarding cardiac catheter ablation. **Research design:** A descriptive design was utilized in this study. **Sitting:** The study was conducted in the Cardiology Department at Assiut University Heart Hospital. **Sample:** A convenience sample of **(52)** nurses who are working in the cardiology department at Assiut University Heart Hospital. **Tools: tool (1),** interview questionnaire sheet for nurses, **tool (2)**, Nurses' practice observation checklist sheet**. Result:** out of the studied nurses (73.1%) their age range between 20-30) years old, most (82.7%) of the studied nurses were female, (67.3-61.5) of studied nurses had unsatisfactory knowledge and practices regarding cardiac ablation respectively. **Conclusion:** The study showed that a large percentage of nursing staff members need educational and training courses regarding cardiac ablation, which contributes to improving the nursing service provided to patients. **Recommendation:** The study recommended that implementing well-structured in-service training programs specifically tailored to nursing recommendations for patients undergoing cardiac catheter ablation would be beneficial in enhancing nursing performance.

***Keywords**: Cardiac catheter ablation, Gaps, Information needs & Support.*

Introduction
Arrhythmias have an impact on millions of people's lives worldwide. An increased risk of stroke, heart failure, and possibly abrupt cardiac death is linked to arrhythmias. Arrhythmias are directly linked to almost 80% of sudden cardiac fatalities, which make up half of all heart disease deaths. But some arrhythmias don't cause any symptoms, which makes it challenging to identify them quickly in a clinical context **(Liu et al.,2022).**

Cardiac catheter ablation has gained popularity recently as a therapy option for conduction disorders and cardiac arrhythmias. Patients who do not respond to antiarrhythmic medications can have cardiac ablation, which is a straightforward procedure with a good prognosis and high success rate **(Lee et al., 2023).**

A tiny quantity of energy, either heat or cryotherapy (cold), is applied to the part of the heart that is generating the irregular heartbeats during ablation. This results in the formation of scar tissue, which prevents the region from producing or conducting the rapid impulses that lead to arrhythmia. The heartbeat returns to normal as the regular conduction pathway takes and relieves the symptoms **(Nakagawa et al., 2022).**

Given their indispensable role in contemporary healthcare systems, nurses must possess a robust foundation of knowledge, skills, and competencies. These include a keen attention to detail, effective communication, and strong problem-solving abilities, all of which are essential for providing patient-centered care. **(Carlsson et al., 2022).**

Nursing assessment and education are part of the patient preparation process for cardiac ablation. The patient's heart rate, rhythm, and blood pressure are measured as part of the nursing assessment. The patient is also instructed to stop taking anticoagulant drugs at least three days prior to the surgery and fast for six hours beforehand **(Glover et al., 2021).**

Following cardiac ablation, nursing care entails routinely monitoring the patient's blood pressure, heart rate, and respiration rate in accordance with the institution's protocol. The nurse needs to be on the lookout for any serious issues that could arise from inserting catheters into the heart. Tachyarrhythmia and Brady arrhythmia, tamponade from perforation, and bleeding from catheter insertion sites can all happen during and after the cardiac ablation procedures **(Morton & Fontaine, 2018).**

To prevent clot displacement and hematoma formation, maintain bed rest by ordering the patient to lie flat (if femoral artery access has been used) with

the affected extremity straight and immobilized. Tell the patient to raise the pillow head, sneeze, or cough with light pressure on the dressing. Prior to the removal of the sheath, the patient should be supplied a bedpan or urinal to increase comfort and decrease movement after the removal of the sheath **(Abozeid et al., 2023).**

A hematoma, pseudoaneurysm, access site hemorrhage, and retroperitoneal bleeding are among the possible problems that the nurse keeps a close eye on at the catheter insertion site. Palpable distal pulses should continue to exist during the pressure application **(Damluji et al., 2022).** Typically, patients are released the day following cardiac ablation. Informing patients about the process and the care needed as they recuperate is a crucial part of the nurse's job. Respond to the patient's inquiries in a clear, concise manner **(Vanharen et al., 2023).**

Significance of study:

According to the patient's records at Assiut University Heart Hospital, it has been found that there were about (30) cases undergoing cardiac ablation in the last six months **(Assiut University Hospital records, 2022)**.Through a period of several months of training as a clinical instructor for clinical institute students in the cardiology department at Assiut University Hospital, was noted that following cardiac ablation, patients were at high risk for various sequelae and required specialized nursing care to enhance their prognosis..

As the largest group of healthcare professionals, nurses have frequent and extensive interactions with patients. This unique position enables them to seamlessly integrate preventive and promotional measures into their daily care. To effectively manage this complex role, nurses must possess a strong knowledge base, a positive attitude, and a comprehensive skill set.

Aim of study:

To assess informational needs regarding cardiac catheter ablation through the following objective:

- Assess nurses' knowledge and practice regarding cardiac catheter ablation.
- Provide knowledge support to nurses regarding cardiac catheter ablation.

Operational definition:

Cardiac catheter ablation is a technique for treating irregular cardiac rhythms. It delivers high-frequency (hot) or freezing energy using a specialized catheter to eliminate the heart tissue section or portions responsible for the arrhythmia **(Reddy et al., 2018).**

Information needs is frequently regarded to be the desire of a person or group to find and acquire information in order to fulfill a need, whether conscious or unconscious **(Martinović et al., 2023).**

Gaps are breaks in medical treatment They could manifest as informational or momentum losses or breaks in the patient's treatment (**Noorain et al., 2023).**

Support a statement or a theory, it helps to show what is true or correct to improve and enhance nursing practice **(Rains, & Carter, 2023).**

Research question:

Q1: What is the level of information for nurses regarding cardiac catheter ablation?

Subject and Methods

Research design:

A descriptive research design was utilized to carry out this study. It was a helpful study strategy that was evidently beneficial in aiding in the description and investigation of relevant variables and constructs **(Jain, 2021).**

Setting:

This study was conducted in the cardiovascular medicine department at Assiut University Heart Hospital. It consists of three floors. The first floor was the women department, which includes 6 rooms, each consisting of 3 beds. The second floor was the men department, which includes 12 rooms, and 29 bed for the patients. The third floor was the privet department which consist of 10 rooms and 15 bed.

Sample

This study includes a convenience sample of all (52) nurses employed by Assiut University Heart Hospital's cardiology department. According to their age range between 20-40 years, sex 9 male and 43 female, educational level diploma 21nurses, Institute 22 nurses, bachelor's 9 nurses.

Tools for data collection: -

Two tools were used in this study and were developed by the researcher based on reviewing the relative national and international scientific literature **(Onianwa et al., 2017 & Taha, 2017).** Study tools were including the following:

Tool (1): Self-administer questionnaire for nurses

This tool is used to assess demographic data and nurses' knowledge regarding cardiac ablation, which has two sections, was created by the researcher based on a review of the literature.

Part 1: **Demographic data** about the nurses such as age, marital status, level of education and years of experience, training courses..... etc.

Part 2: **Nurses' knowledge regarding cardiac ablation:** including the following items: (definition, indications contraindications, complications, patient preparation before the procedure, nursing role before and after cardiac ablation, and discharge instructions.

Scoring system:

Nurses' knowledge of cardiac ablation was assessed using a questionnaire with items scored on a binary

scale (correct=1, incorrect=0). Based on the scores, nurses' knowledge was categorized as either unsatisfactory (<70%) or satisfactory (≥70%) **(Onianwa et al., 2017)**

Tool (2): Nurses' practice observation checklist sheet: was developed by the researcher based on reviewing of literature to assess nurses' practice regarding patients undergoing cardiac ablation which includes the following items: nursing role before the procedure includes (patient skin preparation, Perform ECG for patient, give anticoagulant according to prescribed and obtain a baseline vital signs...etc.), nursing role after the procedure includes (taking vital signs, monitoring arterial access site, observing limb circulation, monitoring coagulation and sheath removal, discharge and follow up instruction.)

Scoring system:

The observation checklist for nurses utilized a 3-point Likert scale. Each item was scored on a scale of 0 to 2, with 0 representing 'not done,' 1 representing 'done incorrectly,' and 2 representing 'done correctly.' Nurses were categorized as having inadequate practices if their overall score was below 70%, and as having adequate practices if their overall score was 70% or higher **(Taha, 2017).**

Designed nursing suggested booklet was developed by the researcher after a comprehensive review of current national and international literature on nurses' knowledge assessment. It includes the definition of cardiac ablation, indications, and contraindications, complications, nurses' role pre- and post-procedure, discharge, and follow-up instruction **(Badertscher et al., 2022 & Padala et al., 2021).**

Procedures:

This study was carried out through two phases

Preparatory phase

Tools development:

- The intended study has received official authorization to proceed, allowing the researcher to begin gathering data.
- Tools for collecting data were developed through a comprehensive review of relevant domestic and international literature, encompassing a wide range of sources such as books, articles, journals, and other scholarly publications.

Content validity and reliability

Tools validity and reliability were tested by panel of five professional health care providers including four faculty members of Medical -Surgical Nursing Faculty of Nursing, Assiut University, and a Lecturer of Cardiology Faculty of Medicine, Assiut University who reviewed the tool, for clarity, relevance comprehensive, understanding, applicability and easiness. **Reliability** of the tools was measured by Cronbach's alpha which was (0.824).

Pilot study

A pilot study involving 10% of the study sample (5 nurses) was conducted to assess the applicability, clarity, and time required to complete the data collection instruments. The data from the pilot study were analyzed, and no modifications were necessary to the tools. As a result, the pilot study participants were included in the main study.

Ethical considerations

The study's ethical committee at the Assiut University Faculty of Nursing authorized the research proposal number 112023672 date 25\9\2023. The researcher guaranteed the patients' privacy and confidentiality throughout the study, and there was no risk to the study subjects. An explanation of the purpose and methodology of the study was conducted to examine nurses. Verbal agreement for study participation was obtained prior to the study, and the nurses were reminded of their right to decline participation.

Implementation

Fieldwork phase

- This study was carried out through a period of six months from the beginning of December (2023) to the end of May (2024).
- The researcher went to hospital three days per week from 8 am to 12 pm to collect data from studied nurse.
- The researcher greeted nurse, introduced self, and the purpose of study was explained to studied nurse prior to data collection.
- Assess socio-demographic characteristics of studied nurses was done by the researcher by using tool one (part1)
- Assess knowledge of studied nurse regarding cardiac ablation was done by researcher using tool one part two.
- Examine the procedures used by the nurses under study for patient care both prior to and following cardiac ablation.
- After finishing the assessment, the researcher clarified to all nurses any wrong or missing information cardiac ablation Also emphasized the importance improve their knowledge and practices.
- The studied nurses received booklet about role of nurse in caring for patient before, after cardiac ablation and discharge and follow up instruction.

Statistical analysis:

Data entry and data analysis were done by using SPSS program (Statistical Package for Social Science) version 26. Data presented as number, percentage, Chi- square test and correlation regression analysis was utilized. P value considered statistically significant when $p < 0.05$.

Results

Table (1): Distribution of demographic data among nurse's participant (n=52)

Variables	N	%
Age by years		
20-30yrs	38	73.1
30-40yrs	14	26.9
Sex		
Male	9	17.3
Female	43	82.7
Level of education		
Diploma	21	40.4
Institute	22	42.3
bachelor's	9	17.3
Years of experience		
1 to 5 yrs	8	15.4
5 to 10 yrs	25	48.1
more than 10 yrs	19	36.5
Attend training about cardiac ablation		
Yes	16	30.8
No	36	69.2

Frequencies (number and percentage).

Table (2): Distribution of total knowledge about cardiac ablation among nurse's participant n= 52

Variables	N	Percent
Unsatisfied less than ≤70% (21 marks)	35	67.3 %
Satisfied more than ≥ 70% (above 21 marks)	17	32.7 %
Total score of knowledge (0-29 marks)		

Frequencies (number and percentage).

Table (3): Distribution of nurse practice regarding cardiac ablation n= 52

Variables	N	Percent
Inadequate ≤70% (77 marks)	32	61.5 %
Adequate ≥ 70% (above 77 marks)	20	38.5 %
Total score (0-110 marks)		

Frequencies (number and percentage).

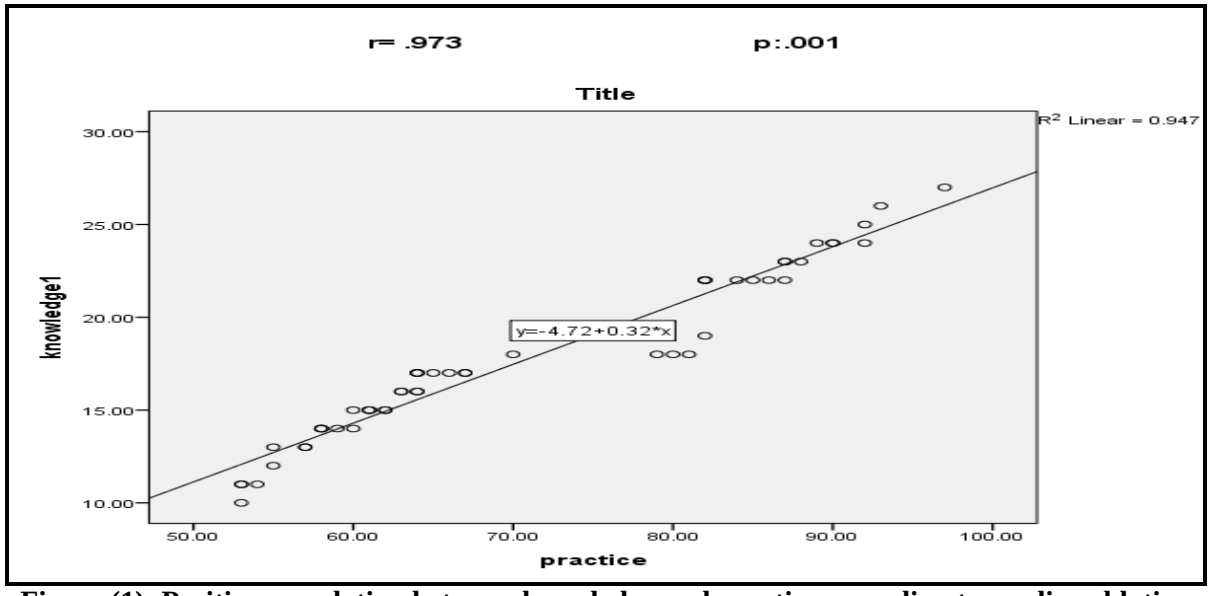

Figure (1): Positive correlation between knowledge and practice regarding to cardiac ablation (n= 52).

Table (1): Showed that about three quarters (73.1%) of studied people their age between 20-30 yrs. Also showed that most (82.7%) of the studied sample were female. Also, about one third (30.8%) of studied people attend training about cardiac ablation.
Table (2): This table shows that two thirds (67.3) of studied nurses had an unsatisfactory level of knowledge about cardiac ablation procedure.
Table (3): This table shows more than one third (38.5%) of studied nurses had an adequate level of practice about cardiac ablation procedure.
Figure (1): As shown in the graph, there is a positive Correlation between knowledge and practice, as the greater the knowledge, the higher the practice rate.

Discussion

Cardiac catheter ablation has gained popularity recently as a therapy option for conduction disorders and cardiac arrhythmias. Patients who do not respond to antiarrhythmic medications can have cardiac ablation, which is a straightforward procedure with a good prognosis and high success rate **(Lee et al., 2023).**
Nurses are essential in providing high-quality care to patients. Adhering to nursing care guidelines is crucial for patient survival and for preventing complications following cardiac ablation. Therefore, nurses need to be proficient in both the knowledge and application of these guidelines before and after cardiac ablation **(Larsen et al., 2020).**
Being up to date on the most recent evidence-based procedures is essential for becoming a competent and productive nurse. In addition to lowering death rates, high levels of nursing care also improve patients' overall quality of life. The current study was carried out to assess information needs for nurses regarding cardiac ablation patients **(Kitson et al.,2021).**
Regarding to demographic data current study sample consisted of fifty-two staff nurses, the majority of nurses were female. The high proportion of female nurses may have resulted from the fact that, up until a few years ago, only women were allowed to pursue nursing education in Egyptian society, making women predominate in the nursing profession. It's also important to note that, of Egypt's graduated nursing staff, the majority were women **(Ministry of Health and Population, 2020).**
Regarding to the gender, the majority of the present study were female this result agrees with, **Henedy & El-Sayad, (2019) & El Sayed Khaliel, (2022)** found that the majority of the study sample were female. Mentioned that most of the participants were female.
Regarding to level of education about half of the nurses in the sample had a nursing Institute, and over two thirds of them were between the ages of 20 and 30. Approximately half of the sample had five to ten years of experience. This outcome is consistent with research done by **Seloma, (2019)** who found that three quarter of the study age ranged between 20-30 years old, and half of them were Institute nursing.
The study findings regarding nurses' knowledge of cardiac ablation showed that most study nurses had unsatisfactory levels of overall knowledge regarding cardiac ablation. Unsatisfactory levels of knowledge were identified in the following areas: pre-procedure nursing care, post-procedure nursing care, complications associated with the procedure, and discharge instructions.
The researcher believes that the reason of this lack of knowledge appears to be linked to several factors as many nurses had not received prior training or courses on these guidelines and the increased workload, they face may further impede their ability to stay updated with current best practices. Consequently, there is a clear need to enhance nurses' understanding through targeted education and training. Improving their knowledge is crucial for advancing their practice and, ultimately, the quality of patient care.
These results were consistent with **Mahmood et al., (2021)** In this study it was found that the questionnaire results demonstrated that nurses working in medical and surgical ward nurses' Knowledge of Patient Safety After Cardiac Catheterization about half were unacceptable.
Also, **Ghafoor et al., (2022),** in their study displayed that, most nurses had poor knowledge related to intra-aortic balloon pump before the educational program. And **Obaid & Mohammed (2020)** the study has revealed that nurse's knowledge toward nursing management for patients undergoing PCI at pre-test study is poor. Furthermore, the survey identified a diverse range of practice guidelines among nurses and highlighted a broad spectrum of educational needs. This finding is supported by **Pandit et al., (2019).**
The study findings indicated that over half of the participating nurses demonstrated an unsatisfactory level of knowledge concerning nursing management during cardiac catheterization. Also, **Henedy & El-Sayad (2019)** mention that about half of the sample had poor level of total knowledge. **Seloma, (2019)** The study revealed that a substantial majority of nurses had an unsatisfactory overall level of knowledge about electrophysiology studies (EPS). Additionally, the most of nurses demonstrated unsatisfactory knowledge regarding post-procedure nursing care.
In comparison, the most exhibited a satisfactory level of knowledge concerning general electrophysiology concepts, and **Hassan & Hassan (2018)** found that most nurses had unsatisfactory knowledge about arrhythmias and the use of intra-aortic balloon pumps in patient care before the implementation of the

educational program. This deficiency in knowledge was particularly concerning given the importance of these topics in cardiac procedures, leading to very unsatisfactory results regarding the nurses' understanding and expertise in these areas.

Contradicting these results **Aziz & Aziza (2022)** found that the most of nurses have a good Knowledge, this result is contradicted with **Neelavathi et al., (2020),** who displayed that, most of the nurses had moderately satisfactory knowledge.

The present study assessed the behaviors of nurses in two primary domains and found inadequate care for patients having cardiac ablation before to and after the procedure. In the same line, **Henedy & El-Sayad (2019)** prior to the implementation of the educational program, the study found that over half of cardiac nurses exhibited suboptimal practices related to patient safety in the context of post-cardiac catheterization arrhythmias. However, following the application of the education program, there was a notable improvement in their practices. **Seloma, Y. A. (2019)** The study revealed that the majority of nurses demonstrated suboptimal practices in caring for patients undergoing electrophysiology studies (EPS), both before and after the procedure.

These findings were in contrast with **Bakr et al., (2020)** the study reported that over half of the participating nurses exhibited adequate practices in caring for patients undergoing cardiac catheterization, both before and after the procedure. **Jabr et al., (2022)** The study revealed that most of the studied nurses had adequate level of practice regarding observe the extremity in which catheter inserted straight for 4-6 hours after procedure. This study result agreed with **Shini et al., (2018)** who found that a significant majority of the participating staff nurses demonstrated adequate practices in managing patients undergoing coronary angioplasty.

The observed low level of practice in the current study may be attributed to factors such as a lack of confidence among nurses, coupled with deficiencies in knowledge and expertise. Moreover, the increasing workload and patient population may have further contributed to these challenges.

The study findings revealed a significant statistical positive correlation between knowledge and practice, suggesting that higher levels of knowledge are associated with improved practice rates this finding supported by **Mohamed et al., (2023).**

Conclusion

The study found that most nurses managed patients having cardiac ablation with unsatisfactory level of knowledge and inadequate level of practices and positive correlation between knowledge and practices.

Recommendations

- Developing strategies to optimize the quality of care provided before and after cardiac ablation procedures is paramount.
- Replicating the study with a larger, more representative sample would help obtain data that is more generalizable.
- Nurses should receive specialized training to improve their understanding of and proficiency with cardiac ablation.

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