

The Impact of a Training Program on Nurses' Practices regarding Myocardial Infarction Patients' Care

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تأثير برنامج تدريبي على ممارسات الممرضات فيما يتعلق برعاية مرضى احتشاء عضلة القلب

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Abstract:

Myocardial infarction is a leading cause of morbidity and mortality globally, and the role of nurses in its management is critical. **Methodology:** A quasi experimental study was aimed to assess the impact of a training program on improving nurses' practices in the care of myocardial infarction (MI) patients in Wad Medani Heart Diseases and Surgery Center. The sample size consisted of 50 nurses who available during study period. The study conducted in two phases and data were collected using observational checklist to observe and monitor nurse's performance on myocardial infarction patient's care pre and post the training program. Data analysis was performed by statistical package for social sciences (spss). **Results:** Pre-training, many nurses demonstrated inadequate practices in managing potential complications, chest pain and arrhythmias, providing psychological support to patients and families, Additionally, post-training, nurses showed increased competence in delivering discharge education about medications, follow-up and changes in life style after myocardial infarction.

Conclusion: Study concluded that targeted training can enhance nurses' clinical skills, confidence, and knowledge, which ultimately leads to better care for MI patients.

Keywords: Training program, practices, nurses, care, myocardial infarction.

الملخص

يُعد احتشاء عضلة القلب أحد الأسباب الرئيسية للاعتلال والوفيات على مستوى العالم، ويُعتبر دور الممرضين حاسماً في التعامل مع هذه الحالة. **المنهجية:** هدفت هذه الدراسة شبه التجريبية إلى تقييم تأثير برنامج تدريبي على تحسين ممارسات الممرضين في رعاية مرضى احتشاء عضلة القلب في مركز ود مدني لأمراض وجراحة القلب. تألفت عينة الدراسة من 50 ممرضاً متاحاً خلال فترة الدراسة. أجريت الدراسة على مرحلتين، وجمعت البيانات باستخدام قائمة مراقبة لتقييم أداء الممرضين في رعاية مرضى احتشاء عضلة القلب قبل وبعد برنامج التدريب. وتم تحليل البيانات باستخدام الحزمة الإحصائية

للعلوم الاجتماعية (SPSS). **النتائج:** قبل التدريب، أظهر العديد من الممرضين ممارسات غير كافية في إدارة المضاعفات المحتملة، وآلم الصدر، واضطرابات نظم القلب، وتقديم الدعم النفسي للمرضى وأسرهم. بالإضافة إلى ذلك، أظهرت الممرضين بعد التدريب كفاءة متزايدة في تقديم التنقيف الصحي بعد الخروج من المستشفى حول الأدوية، والمتابعة، والتغيرات في نمط الحياة بعد الإصابة باحتشاء عضلة القلب.

الخلاصة: خلصت الدراسة إلى أن التدريب المُستهدف يُمكن أن يُعزز المهارات السريرية للممرضين، وثقتهم، ومعرفتهم، مما يؤدي في النهاية إلى رعاية أفضل لمرضى احتشاء عضلة القلب.

الكلمات الدالة: برنامج تدريبي، ممارسات، الممرضين، رعاية، احتشاء عضلة القلب.

Introduction:

Myocardial infarction (MI), or heart attack, continues to be a major global health concern, significantly contributing to illness and death. High-quality nursing care is essential for improving patient recovery, minimizing complications, and enhancing survival rates [1]. Nurses are crucial in promptly identifying mi symptoms, providing immediate care, and supporting rehabilitation. However, differences in nurses' expertise and clinical approaches can greatly influence the standard of care delivered to MI patients [2]. Structured professional training has been recognized as a vital approach to strengthening nurses' skills in cardiac care [3]. Research suggests that nurses who receive specialized cardiac training follow evidence-based protocols more closely, monitor patients more effectively, and respond to emergencies with greater efficiency [4]. Nevertheless, many healthcare settings, especially those with limited resources, still face challenges in adopting standardized training programs [5]. Emerging studies emphasize the importance of continuous education to ensure nurses stay informed about the latest developments in MI treatment, such as new medications, ECG analysis, and post-recovery lifestyle guidance [6]. Innovative training methods, including simulation exercises and case-based learning, have proven effective in refining nurses' clinical judgment [7]. A study by Wilson et al. found that numerous nurses are not adequately informed about current post-myocardial infarction (MI) care practices, particularly regarding medication management and educating patients. This underscores the importance of ongoing training programs to maintain compliance with clinical guidelines [8]. Recent research highlights the need for ongoing education to keep nurses updated on the latest advancements in cardiac care, including the use of thrombolytics, post-MI lifestyle counseling [9]. A well-designed training program can bridge these gaps by reinforcing best practices, improving critical thinking, and fostering a patient-centered approach [10]. A 2023 quasi-experimental study in a cardiac ICU revealed that trained nurses had fewer medication errors and improved monitoring of post-MI complications like arrhythmias and heart failure [11]. A systematic review done to link nurse training programs to shorter hospital stays and lower mortality rates for MI patients, attributing this to better early intervention and patient education [12]. Recent evidence consistently supports that targeted training programs enhance nurses' MI care practices, leading to better protocol adherence, fewer errors, and improved patient outcomes. However, sustainability requires ongoing education and institutional support. This study conducted to assess how a structured training program influences nurses' practices regarding myocardial infarction patients' care particularly in following clinical guidelines and improving patient outcomes.

Methodology:

Study design: A quasi experimental study aimed to assess the impact of a training program on nurses practice regarding nursing care of myocardial infarction patients, The study was done in

Wad Medani heart diseases and surgery center, in Wad Medani city the capital of Gezira State, this center receives patients from the whole state and neighboring states.

Sample size: sample consisted of (50) nurses who constituted all available nurses from all shifts during the period of study. All nurses who have direct contact with myocardial infarction patients and complete one year of experience and more were included. Study exclude nurses who refused to participate and nurses in vacation during study period.

Phases of study: the study was conducted in two phases

Pre interventional phases:

Permission from manager and matron of wad medani heart disease and surgery center through official letters.

Orientations were done for selected nurses, about the objectives and importance of the study, and all of them were consented and agreed about participation.

Base observation for nurses' performance on care of myocardial infarction patients by the researcher using observation check list.

B. Interventional phase:

The educational program was done focused on nurses' practices regarding myocardial infarction patients care in emergency room, assessment and care of chest pain, nursing management for potential complications, arrhythmias, dyspnea, anxiety, fear of death, patients care planed for discharge, medications, follow up and health education.

Data collection tools: the researcher used observational check list twice, pre and post training, to evaluate nurses practices regarding myocardial infarction patients care. data was entered and analyzed used the statistical package for social sciences (SPSS),descriptive statistics was used to describe the study population in relation to relevant variables.

Results

Table (1): Socio- demographic data

(No. 50)

Age (years)	No	%
20 < 30	12	24%
30 < 40	38	76%
> 40	-	-
Gender		
Male	8	16%
Female	42	84%
Educational level		
Post graduate	0	0
Bachelor	50	100%
Diploma	0	0
Total	50	100.0

Table (1): shows majority of nurses' age ranged between 30 - 40 years, followed by (24%) their age ranged between 20 < 30 years, and most of them were female (84%).

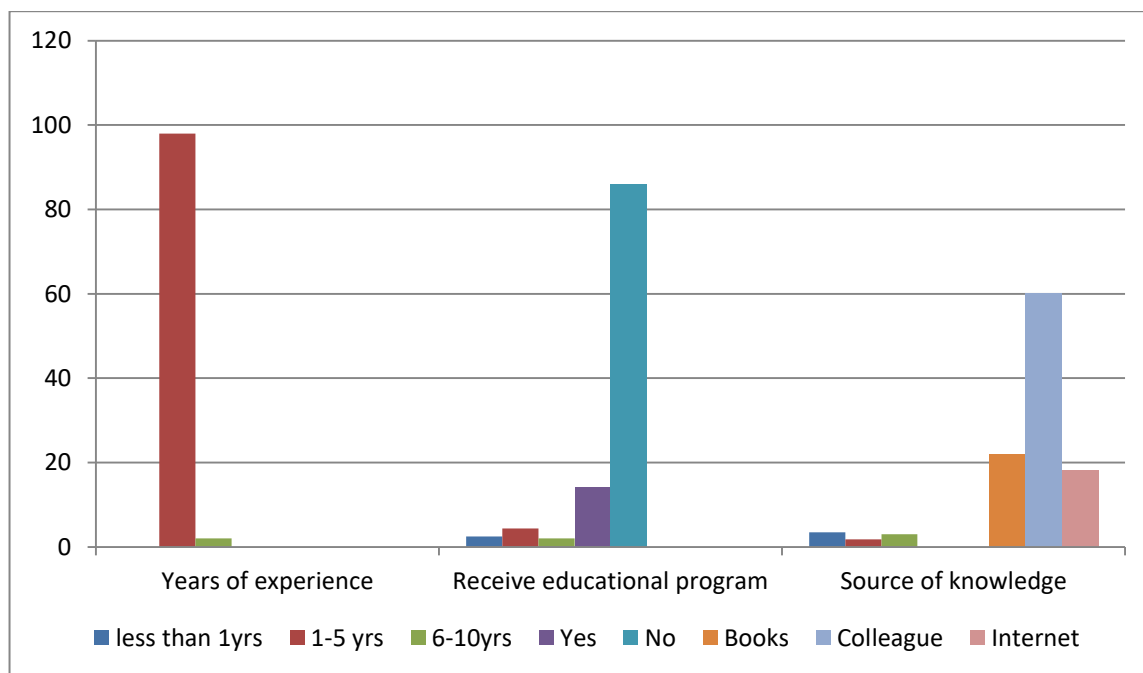


Figure (1): shows that (98%) of nurses their years of experience ranges between 1-5 years, (86%) of nurses not receive educational program. And (60%) of nurses receives their information from colleague.

Table (2): Nurses' practices regarding myocardial infarction patients care in emergency room.
No (50)

Items	Pre training						Post training					
	Done correctly		Done correctly incomplete		Not done		Done correctly		Done correctly incomplete		Not done	
	No	%	No	%	No	%	No	%	No	%	No	%
Fix cannula	50	100	0	0	0	0	50	100	0	0	0	0
Made ecg	50	100	0	0	0	0	50	100	0	0	0	0
Administer o2	29	58	0	0	21	42	43	86	0	0	7	14
Monitor vital signs	50	100	0	0	0	0	50	100	0	0	0	0

Table (2): shows that pre and after training all the nurses' (100%) fixed cannula, perform ECG and monitor vital signs (as protocol).

Table (3): Nurses' practices regarding myocardial infarction patients' complain of chest pain.
No (50)

Items	Pre training						Post training					
	Done correctly		Done incorrectly		Not done		Done correctly		Done incorrectly		Not done	
	No	%	No	%	No	%	No	%	No	%	No	%
Asses the location and duration of pain	15	30	20	40	15	30	42	84	3	6	5	10
Administer o2	24	48	0	0	26	52	45	90	0	0	5	10
Ecg during pain	29	58	0	0	21	42	46	92	0	0	4	8
Monitor vital signs	16	32	17	34	17	34	33	66	7	14	10	20
Administer nitroglycerine	32	64	0	0	18	36	48	96	0	0	2	4

Table (3): shows that (30%) of the nurses' asses the location and duration of pain pre training, raised to (84%) after training. Pre training (48%) administer o2 during pain, rising to (90%) after training.

Table (4): Nurses' practices regarding myocardial infarction patients care for potential arrhythmias.

No (50)

Items	Pre training						Post training					
	Done correctly		Done correctly incomplete		Not done		Done correctly		Done correctly incomplete		Not done	
	No	%	No	%	No	%	No	%	No	%	No	%
Monitor cardiac rate and rhythm or any changes	3	6	15	30	32	64	36	72	8	16	6	12
Observe vital signs, and ecg	4	8	25	50	21	42	39	78	6	12	5	10
Promote physical rest	23	46	0	0	27	54	44	88	0	0	6	12
Keep anti arrhythmic drugs and defibrillator ready	5	10	13	26	32	64	32	64	12	24	6	12

Table (4): shows that pre training only (8%) of nurses observe vital signs, and ECG, raised to (78%) after training. Pre training (46%) promote physical rest rising to (88%) after training. Pre

training just (10%) of nurses keep anti arrhythmic drugs and defibrillator ready, raised to (66%) after training were done correctly.

Table (5): Nurses' practices regarding myocardial infarction patients complain of dyspnea.

No (50)

Items	Pre training						Post training					
	Done correctly		Done correctly incomplete		Not done		Done correctly		Done correctly incomplete		Not done	
	No	%	No	%	No	%	No	%	No	%	No	%
Asses for any dyspnea (abnormal breath sound)	6	12	5	10	39	78	38	76	7	14	5	10
Propped up position ,rest and comfort	13	26	0	0	37	74	36	72	0	0	14	28
Administer o2	20	40	0	0	30	60	44	88	0	0	6	12
Psychological support	9	18	10	20	31	62	41	82	4	8	5	10

Table (5): shows that only (12%) of nurses' asses patients for any dyspnea pre training, raised to (76%) after training. Pre training (26%) of nurses put the patient in propped up position, rest and comfort, raised to (72%) after training.

Table (6): Nurses' practices regarding myocardial infarction patients with anxiety and fear of death.

No (50)

Items	Pre training						Post training					
	Done correctly		Done correctly incomplete		Not done		Done correctly		Done correctly incomplete		Not done	
	No	%	No	%	No	%	No	%	No	%	No	%
Encourage patient and family to express fear	7	14	18	36	25	50	37	74	11	22	2	4
Explain the procedures being done for him	10	20	15	30	25	50	43	86	4	8	3	6
Psychological and spiritual support	5	10	8	16	37	74	39	78	6	12	5	10
Administer anti-anxiety drugs as prescribe	26	52	0	0	24	48	42	84	0	0	8	16

Table (6): Shows that only (14%) of nurses' encourage patient and family to express fear pre training , raised to (74%) after training. Pre training only (10%) give the patient psychological and spiritual support raised to (78%) after training. Pre training (52%) of nurses gave anti anxiety drugs as prescribe raised to (84%) after training.

Table (7): Nurses' practices regarding activity intolerance.

No(50)

Items	Pre training						Post training					
	Done correctly		Done correctly incomplete		Not done		Done correctly		Done correctly incomplete		Not done	
	No	%	No	%	No	%	No	%	No	%	No	%
Health education about rest to decrease o2 consumption	23	46	17	34	10	20	43	86	4	8	3	6
Help for personal hygienic activity	21	42	9	18	20	40	40	80	7	14	3	6
Watch for dyspnea chest pain during activity	9	18	12	24	29	58	39	78	8	16	3	6
Administer o2 as needed	22	44	0	0	28	56	42	84	0	0	8	16

Table (7): shows that (46%) of the nurses' gave the patient health education about rest to decrease O2 consumption pre training, raised to (86%) after training. Pre training (42%) of nurses help patients in their hygienic activity raised to (80%) after training.

Table (8): Nurses' practices regarding potential complication of thrombolytic therapy.

No (50)

Items	Pre training						Post training					
	Done correctly		Done correctly incomplete		Not done		Done correctly		Done correctly incomplete		Not done	
	No	%	No	%	No	%	No	%	No	%	No	%
Fix cannula	50	100	0	0	0	0	50	100	0	0	0	0
Protect patient from injury	13	26	9	18	28	56	43	86	5	10	2	4
Monitor bleeding time and coagulation profile	7	14	0	0	43	86	39	78	7	14	4	8
Keep anti-coagulant ,anti dot ready	15	30	0	0	35	70	40	80	3	6	7	14
Monitor vital signs	8	16	18	36	24	48	44	88	3	6	3	6

Table (8): shows that all the nurses (100%) are fixed cannula pre and post training , pre training (26%) of nurses protect patient from injury, while after training raised to (86%) . Pre training (16%) of nurses monitor vital signs, raised to (88%) after training.

Table (9): Nurses' practices regarding planed for discharge No (50)

Items	Pre training						Post training					
	Done correctly		Done correctly incomplete		Not done		Done correctly		Done correctly incomplete		Not done	
	No	%	No	%	No	%	No	%	No	%	No	%
Explain the name ,purpose, effect and side effect of medication	25	50	12	24	13	26	44	88	6	12	0	0
Ask for regular follow up and continuing medication at home	23	46	7	14	20	40	35	70	10	20	5	10
Teach about management of chest pain at home	3	6	8	16	39	78	36	72	5	10	9	18

Table (9): shows that (50%) of nurses' explain the name, purpose, effect and side effect of medication pre training , raised to (88%) after training. Pre training (46%) of nurses' ask patient for regular follow up and continuing medication at home, raised to (70%) after training.

Table (10) Nurses' practices for myocardial infarction patients care regarding health education. No (50)

Items	Pre training						Post training					
	Done correctly		Done correctly incomplete		Not done		Done correctly		Done correctly incomplete		Not done	
	No	%	No	%	No	%	No	%	No	%	No	%
Teach how to take nitroglycerine	26	52	21	42	3	6	50	100	0	0	0	0
Teaching about diet	14	28	7	14	29	58	35	70	6	12	9	18
Teaching to seek immediate medical care	14	28	0	0	36	72	30	60	0	0	20	40
Explain work issue	5	10	17	34	28	56	39	78	9	18	2	4
Teaching about sexual activity	4	8	5	10	41	82	34	68	3	6	13	26

Table (10): shows that (52%) of nurses' teach the patient how to take nitroglycerine pre training, raised to (100%) after training. Pre training (10%) of nurses explain to the patients about work

issue raised to (78%) after training. Pre training only (8%) of nurses teaching the patient about sexual activity raised to (68%) after training.

Discussion:

This study revealed that, majority of nurses' age ranged between 30 - 40 years, followed by (24%) their age ranged between 20 < 30 years, and most of them were female (84%). Regarding the level of education, it was observed that is all the nurses with bachelor level (100%). Majority of nurses their level of experience ranged between 1 to 5 years. (86%) of nurses not received any educational program about myocardial infarction, sources of knowledge of (60%) of nurses from colleague. Regarding nurses practices the study revealed that all nurses pre and post training were fixed cannula, performed ECG and monitor vital signs on admissions (as protocol). Pre training when the patient complain of chest pain (30%) of the nurses' asses the location and duration of pain, about halve of them administered O2 and performed ECG during pain and (64%) gave nitroglycerine during pain, raised to (84%), (86%), (92%), (96%) respectively post training, these findings are supported by previous study showed that nurses who underwent MI-specific training were more likely to follow standardized protocols for pain management, oxygen therapy, and drugs administration [13]. Nurses practices regarding potential arrhythmias pre training just (6%) of the nurses' monitor cardiac rate and rhythm or any changes in ECG, (10%) of them keep anti arrhythmic drugs and defibrillator ready, raised to (72%), (64%) respectively post training these findings are supported by previous study showed after program nurses were skillful especially in early intervention when a patient shows signs of clinical instability that is reduce the incidence of complications [14]. The study also revealed that pre training just (14%) of nurses' encourage patient and family to express their fear regarding myocardial infarction patients with anxiety and fear of death, while (20%) of them explain the procedures being done for him, (10%) gave the patient psychological support, and about halve of nurses gave anti anxiety drugs as prescribe by correct methods, raised to (74%), (86%), (78%), (84%) respectively post training. These findings are supported by study results reported that training improved nurses' confidence and accuracy in managing MI patient, and significantly enhanced nurses' knowledge and adherence to evidence-based guidelines in MI care. [15]. Another study showed that counseling, provided by a coronary care nurse, statistically significantly reduces anxiety and depression in myocardial infarction patients and anxiety in their partners [16]. The results showed pre training nurses' practices regarding myocardial infarction patients care plan for discharge medications, follow up and health education, (50%) of the nurses' explain the name, purpose, and side effect of medication (46%) ask patient for regular follow up and continuing medication at home, while (6%) of nurses teach patient about management of chest pain at home. And (28%) of them tell the patient when to seek immediate medical care correctly, Raised to (88%), (70%), (72%), (60%) respectively post training. These findings are supported by results of study showed that after program the staff nurse were provide emotional support, counseling, develop behavior modification techniques and monitor therapy compliance [14].

5. Conclusion:

In conclusion, this study highlights improvements in the knowledge and practices of nurses in managing myocardial infarction (MI) patients following a specialized training program. Prior to the training, a majority of nurses demonstrated gaps in their practices related to assessing and managing MI symptoms, providing psychological support, and educating patients on discharge. However, post-training results revealed substantial improvements, with nurses showing increased adherence to standardized protocols, enhanced monitoring skills, and better

management of patient anxiety and pain. The training program also improved nurses' ability to educate patients about medications, follow-up care, and when to seek medical help. These findings align with previous studies, which emphasize the importance of continuous education in enhancing nurses' clinical competencies and confidence, ultimately leading to better patient outcomes. This study underscores the need for ongoing educational initiatives to ensure that nurses are well-equipped to provide high-quality care to MI patients, reducing complications and improving overall patient satisfaction.

Conflict of interest: The authors declare no conflict of interest.

Ethical consideration:

Ethical clearance from the research committee- faculty of Applied Medical Sciences, University of Gezira.

Official letters to manager of Wad Medani Heart Diseases And Surgery Center to take permission

Informed consent was taken from each participant.

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