

# Effectiveness of an Educational Program on Nurses' knowledge about Risk Factors for Bleeding of Acute Myocardial Infarction in Patient Receiving Thrombolytic Therapy at Coronary Care Unit in Al-Diwaniya Teaching Hospital

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## Abstract

This aims of the study include assess of nurses' knowledge and find out the effectiveness of the educational program among nurses about risk factors for bleeding of acute myocardial infarction in patient receiving thrombolytic therapy at coronary care unit in Al-Diwaniyah Teaching Hospital, and find out the relationship between the nurses' knowledge and their demographic variable. Methodology a pre-experimental design is applied with utilizing (one group design: pre-test and post-test) has been done at Coronary Care Unit in Al-Diwaniya Teaching Hospital. Duration of study beginning from (September 17, 2020 to April 4, 2021 ) on a non-probability (purposive) sample comprising of (40 nurses) employing in the Coronary Care Unit. The results of this study illustrated that there is a highly significant differences among the nurses' knowledge about risk factors for bleeding AMI in a patients receiving thrombolytic therapy at the score post-test compared with the score pre-test(at post -test M= 1.76 versus at pre -test M= 1.26 at p-value 0.0001) to the nurses' participation in these study. The researcher concluded that the nurses' knowledge were (low), and after Implementation the educational program, the nurses' knowledge were improving to (good) about risk factors for bleeding AMI in a patients receiving thrombolytic therapy at coronary care.

**Keywords:** *Effectiveness of an education program, ' nurses' knowledge, acute myocardial infarction, thrombolytic therapy.*

## Introduction

Cardiovascular diseases (CVDs) are a category, as the disturbances in the cardiac and the blood vessel, and included the coronary heart disease, acute myocardial infarction, heart failure, a cerebrovascular disease, peripheral of the vascular disease, defects of the congenital cardiac, the deep vein thrombosis, and the pulmonary embolism [1]. Acute myocardial infarction (AMI) is a severe type of the coronary artery disease which, occurs from the blocked arteries in the heart. Infarction means the dying of tissue related to decrease of support of the blood. Although acute myocardial infarction may result in permanent heart damage and cell death with symptoms that usually involve the chest pain, difficulties breathing and rapid heartbeat, a sweating, nausea, palpitations [2] [3]. Diagnostic methods for

discovery the patients with acute myocardial infarction, are electrocardiogram (ECG) and markers of the heart muscle necrosis. special markers for injury of the heart muscle, are Troponin T and troponin I. It appears to be a clinical situation described by the fast advancing critical the muscular tissue of the heart ischemia, is one of the generally, health conditions in the people and related to the dying [4]. The period from onset of symptoms, until the time of restoration of the blood flow has a significant effect on acute myocardial infarction on the rating of death, to decrease death-rate and the complications through the therapy to the reperfusion either thrombolytic therapy or the percutaneous coronary intervention (PCI) [5]. Thrombolytic therapy is occurred, as a preference in the treatment of acute myocardial infarction, improves suffering from a disease and rating of the dying by

breaking down the clot in the blood vascular and achieving reperfusion, this decreases the infarction volume, preserves the left ventricular activity. It is dissolve the thrombosis of heart blood vessel, by transforming the plasminogen to the plasmin [6]. Bleeding is the generality frequent complication of the thrombolytic treatment in patient with acute myocardial infarction and could happen on puncture location or suddenly throughout, within the body. Intracranial bleeding or the bleeding stroke has been the most major problem. Knowing the bleeding risks, can help to decide as to if thrombolytic medication must be given to persons [7]. In this study, the important risk factors involved the major surgery over the past three weeks, inner hemorrhaging over the past four weeks, the high blood pressure, acute myocardial infarction, a stool occult positive hemorrhaging, the existence of gastrointestinal hemorrhaging previous to three month, race African-American, balloon pump intra-aortia, the cardiopulmonary resuscitation for more than ten minutes, aortic dissection, acute pancreatitis, the sex of women was independently related to the levels of severe extra cranial bleeding, progressing age of more than 75 years old, bilirubin more than 3 mg/dL, and dementia [8]. It may be a significant the event, leading to the premature death or the severe blood circulation degradation. The delivery of the thrombolytic therapy, for the patients who are undergoing acute myocardial infarction lowers the relative the death rating by 18% as well as the absolute a death rating by about 2% [9].

### Method of the study

A pre-experimental design is applied with utilizing (one group design: pre-test and post-test) has been done at Coronary Care Unit in Al-Diwaniya Teaching Hospital. Duration of study beginning from (September 17, 2020 to April 4, 2021 ) on a non-probability (purposive) sample comprising of (40 nurses) employing in the Coronary Care Unit.

### Study instrument

The tool for the study, including two parts, first consists of (7) items involving age, gender, educational level, years of experience in nursing, years of experience in CCU, educational/ training courses

related thrombolytic therapy, and educate yourself about the knowledge of thrombolytic therapy. The second part consists from (4) domains which include: nurses' knowledge about the heart and AMI, nurses' knowledge about the AMI medications, nurses' knowledge about the thrombolytic therapy, and nurses' knowledge about risk factors for bleeding in patients with AMI receiving thrombolytic therapy

The content validity was limited by assessment of the educational program and the multiple choice questions through a panel of (11) experts which had more than 10 years from professional experiment in their fields, for examining the content of the questions of multiple choice and educational program concerning acute MI and thrombolytic therapy.

### Scoring:

The number of correct answers was utilized to identify the level of knowledge to every nurse, rating score from answers (2) to correct and (1) to incorrect, the knowledge test occupy of (20-30) minutes for complete.

### The Statistical Data Analysis:

The data of the study were analyzed and evaluated utilizing the Statistical Package for Social Sciences (SPSS) version 25 of the statistical analysis system application, to analyze and assess the finding of the study.

## Results and Discussion

### Demographic data of the present study

The table (1) shows the demographic data of this study. the results of the study regarding the age of nurses revealed that the majority of participants (45.0%) were between (20-25) years old. These findings of the current study was supported by a study conducted by Abdulrdha and Mansour (2018) that was displayed about (36.20%) of the nurses were in the age group (20-24) years old [10].

The results explanted that the highest percentages of the nurses participants in the study sample were female (60%) while were the male (40%). This finding from the current study was agrees with a study conducted by

Toppo, Dungdung, and Kumar (2019) which showed that the majority of the study sample were females (93.0%)<sup>[11]</sup>.

With regard to educational levels, the findings of the study showed that most of the study participants graduated from high school nursing (45%). A study by Attiah, Khader, and Hassan (2012) is completely in agreement with the results of the current study which acknowledged that most of the participants (52.7%) were high school nursing graduates<sup>[12]</sup>.

According to years of experience in nursing field the results illustrates that the greater number of nurses were (50.0%) were ranging of their nurses have less than 5 years of experience in nursing. These findings of the study conducted by Abed and Kadhim (2014), Al-Tameemi and Khudur (2017), and Ahmed et al., (2019) who reported that most the sample of the study had less than 5 years of experience in nursing, supported the findings of these current study<sup>[13][14][15]</sup>.

Regarding years of experience in coronary care units, the maximum of participants in the study found (72.5%) were ranging in their years of experience less than 5 years. While regarding to the training courses about thrombolytic therapy, the findings of the study explain that all of the nurses (100 %) don't have training courses about thrombolytic therapy. this results were totally agrees with results found in Hami (2020)<sup>[16]</sup>.

The results of the study demonstrated that (85%) of the sample have not educate yourself about the knowledge of thrombolytic therapy, the nurses at coronary care unit in AL-Diwaniyah Teaching Hospital, have no obtainable written protocols or the resources of the information to improving their knowledge about risk factors for bleeding of AMI in patient receiving thrombolytic. Also, the absence of persistent monitoring and evaluation necessary to preserve the correct knowledge (The research).

Table (2) The results of the study illustrated that the knowledge of nurses about risk factors for bleeding acute myocardial infarction in a patients receiving thrombolytic therapy at the pre-test was low at mean score (1.26), and in the post-test experience, the knowledge of the nurses were improved to good at mean score (1.76) after the educational program was implemented.

Table (3) show there a high statistically significant difference between the nurses participants overall assessment in two periods of measurements about risk factors for bleeding of acute myocardial infarction in patient receiving thrombolytic therapy at pretest and posttest in the p-value (0.0001). There was a marked improvement in the knowledge of the nurses in the post-test compared with the pre-test scores, after implementation the education program

These findings agree with a study conducted by Lu et al., (2013), Hammod and Mohammed (2016), Toppo et al., (2019), and Hami, (2020) indicate that an improved knowledge following the application of the educational program in the study sample<sup>[17][18][16][11]</sup>.

Association between demographic data and nurses' Knowledge.

Results of tables (4) illustrated that there is no significant relationship between the overall nurses' knowledge after application the educational program (post-test) with their demographic data (age, gender, educational level, number of years in nursing, years of experience in coronary care unit, and educate yourself about the knowledge of thrombolytic therapy) at p-value more than (0.05).

The results of the current study were agreed with the studies conducted by Nasir and Hassan (2015), Sameen and Al-Attar (2015), Al-Tameemi and Khudur (2017), and Atiyah (2018) was occurs that there is no statistically significant relationship between the participants' demographic data and their knowledge<sup>[19][20][14][21]</sup>.

**Table (1): Study Sample Demographic Data (N= 40)**

Demographic Data	Rating and Intervals	Frequency	Percent
Age / years	20-25	18	45
	26-30	12	30
	31-35	7	17.5
	36-40	3	7.5
	Total	40	100
Gender	Male	16	40
	Female	24	60
	Total	40	100
Educational Level	Secondary School of Nursing	18	45
	Diploma in Nursing	9	22.5
	Bachelor in Nursing	13	32.5
	Total	40	100
Years of experience in nursing	1-5	20	50
	6-10	9	22.5
	11-15	8	20
	16-20	3	7.5
	Total	40	100
Years of Experience in CCU	1-5	29	72.5
	6-10	4	10
	11-15	7	17.5
	Total	40	100
Participate in training courses related to thrombolytic therapy	Yes	0	0.0
	No	40	100
	Total	40	100
Educate yourself about the knowledge of thrombolytic therapy	Yes	6	15
	No	34	85
	Total	40	100

**Table (2) Overall Assessment of the Nurses' Knowledge at two Periods of measurements (pre-test and post-test)**

Main studied domains	Levels	Pre-test				Post-test			
		Freq.	%	Mean	Assessment	Freq.	%	Mean	Assessment
Nurses' Knowledge about the Heart and AMI	Fair	12	30	1.35	Fair	0	0.0	1.82	Good
	Good	2	5			40	100		
	Low	26	65			0	0.0		
	Total	40	100			40	100		
Nurses' Knowledge about the AMI Medications	Fair	5	12.5	1.30	Low	0	0.0	1.79	Good
	Good	3	7.5			40	100		
	Low	32	80			0	0.0		
	Total	40	100			40	100		
Nurses' Knowledge about the Thrombolytic Therapy	Fair	5	12.5	1.18	Low	15	37.5	1.70	Good
	Good	0	0.0			25	62.5		
	Low	35	87.5			0	0.0		
	Total	40	100			40	100		
Nurses' Knowledge about Risk Factors for Bleeding in Patients with AMI receiving Thrombolytic Therapy	Fair	6	15	1.22	Low	1	2.5	1.74	Good
	Good	0	0.0			39	97.5		
	Low	34	85			0	0.0		
	Total	40	100			40	100		
Overall Nurses' Knowledge	Fair	8	20	1.26	Low	1	2.5	1.76	Good
	Good	0	0.0			39	97.5		
	Low	32	80			0	0.0		
	Total	40	100			40	100		

**Good (mean 1.68-2), fair (mean 1.34-1.67), low (mean 1-1.33)**

**Table (3) Mean Difference (Paired T-Test) of the Overall Assessment of the Nurses' Knowledge at two Periods of measurements (pre-test and post-test)**

Main studied domains	Periods of Measurements	Mean	Std. Deviation	t-value	d.f.	p-value
Nurses' Knowledge about the Heart and AMI	Pre-test	1.35	0.14	20.017	39	.0001 HS
	Post-test	1.82	0.06			
Nurses' Knowledge about the AMI Medications	Pre-test	1.30	0.18	17.046	39	.0001 HS
	Post-test	1.79	0.07			
Nurses' Knowledge about the Thrombolytic Therapy	Pre-test	1.18	0.13	24.895	39	.0001 HS
	Post-test	1.70	0.06			
Nurses' Knowledge about Risk Factors for Bleeding in Patients with AMI receiving Thrombolytic Therapy	Pre-test	1.22	0.12	24.895	39	.0001 HS
	Post-test	1.74	0.06			
Overall Nurses' Knowledge	Pre-test	1.26	0.08	38.861	39	.0001 HS
	Post-test	1.76	0.03			

**Table (4) Association between the Overall Assessment of the Nurses' Knowledge (post-test) and their Demographic Data**

Demographic Data	Chi-Square Value	D.F.	P-Value
Age/Years	2.393	3	.495 NS
Gender	1.538	1	.215 NS
Education Levels	2.130	2	.345 NS
Years Of Experience In Nursing	1.026	3	.795 NS
Years Of Experience In Ccu	.389	2	.823 NS
Self-Education	.181	1	.671 NS

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**Conflict of Interest:** None to declare.

**Ethical Clearance:** "All experimental protocols were approved under College of Nursing were carried out in



accordance with approved guidelines”.

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