



Effect of nursing intervention on therapeutic adherence of patient with myocardial infarction

¹Faten Bakir Ramadan, ²Jehan Sayyed Ali, ³Lobna Mohammed Gamal, ⁴Yasser Shaban Mohamed and ⁵Eman Fadl Abd Elkhalik

¹ Assistant lecture, Department of Medical-Surgical Nursing, Faculty of Nursing - Minia University, Egypt

² Professor, Department of Medical Surgical Nursing, Faculty of Nursing – Minia University, Egypt

³ Professor, Department of Medical-Surgical Nursing, Critical Care Nursing Specialty, Faculty of Nursing - Minia University, Egypt

⁴ Professor, Department of Cardiothoracic Surgery, Faculty of Medicine- Minia University, Egypt

⁵ Assistant lecture, Department of Medical-Surgical Nursing, Faculty of Nursing - Minia University, Egypt

Corresponding Author: Faten Bakir Ramadan

DOI: <https://doi.org/10.33545/nursing.2025.v8.i1.B.448>

Abstract

Background: One of the most important actions for patients suffering from myocardial infarction (MI) is adherence, which reduces the severity of the condition and increases the likelihood of successful treatment. A serious and complicated issue, non-adherence to treatment plans raises the risk of complications like heart failure, cardiac arrest, and even death. These outcomes could thereby worsen the patient's physical and mental health, lengthen their hospital stay, and raise hospital expenses.

Purpose of the study: Demonstrate nursing protocol to improve self-efficacy adherence for patients with myocardial infarction.

Research design: The research's goal was achieved by using a quasi-experimental research methodology.

Subjects: A purposive sample involved (80) adult patients have myocardial infarction.

Setting: This research was carried out Coronary Care Unit (CCU) in the Minia University Hospital's.

Data collection tools: Four instruments were utilized to gather data, 1st tool is a structured interview assessment sheet that composed of two parts, 1st part (demographic data) 2nd part (medical data). The 2nd tool is the Physical Activity adherence sheet which includes the activity of daily living as well as range of motion. Third tool is nutrition Adherence sheet and fourth tools is the medication adherence sheet.

Results: clarify that protocol improve mean score adherence of study group to physical activity, rang of motion, nutrition& medication post 6weeks and post 12 weeks after nursing protocol implementation with highly statistical significance among study group.

Conclusion: The nursing protocol had a positive impact on enhancing therapeutic regimen adherence as well as self-efficacy among patients with MI post 6 weeks and post 12 weeks after nursing protocol implementation.

Recommendations: Replication of the current study using a bigger probability sample for various regions to generalize the findings.

Keywords: Myocardial infarction, self-efficacy, range of motion, nutrition and medication adherence

Introduction

A myocardial infarction (MI) is caused by partial or total blockage of a coronary artery, which reduces the amount of blood that reaches the heart's cells. A location and degree of coronary artery blockage determine the degree of heart injury. This illness has the potential to be fatal. Healthy cardiac muscle is necessary for a heart to relax, contract, as well as pump blood via the body. The effectiveness and speed of treatment determine the outcome (Elkashef, 2022) [9].

Myocardial infarction raises the mortality rate and results in physical, social stress, occupational, sexual, as well as incapacity. Two stressors have a negative impact on self-efficacy by lowering self-esteem, causing anxiety, dissatisfaction, as well as undermining mental wellbeing. Self-esteem, or the personal assessment of one's own belief,

has a detrimental impact on self-efficacy (Ahmadi, 2022) [1]. Social contacts of patients, thoughts, emotions, and functioning are all influence by their sense of self-worth. The ability to achieve a desired outcome is known as self-efficacy, which is an individual's belief in their own capacity to conduct a specific action. People who have poor self-efficacy refrain from engaging in any activity or conduct that they believe is outside of their capabilities. Conversely, high levels of self-efficacy led to improved self-management results, longer life expectancy, and the ability to transform a potentially dangerous situation into one of confidence. Heart patients' health-related habits can also be changed with high self-efficacy improvement. (Ahmadi, 2022) [1].

Increased self-efficacy has a significant effect on the results of cardiac rehabilitation. It is a key component in enhancing

self-management abilities, encouraging patients to choose healthy lifestyle choices, and helping them stick to treatment plans after being released from the hospital. There is substantial evidence that cardiac rehabilitation can enhance quality of life while lowering hospitalization and cardiovascular mortality. Bandura asserts that individuals with greater self-efficacy also possess superior self-management abilities, and vice versa. (Shajrawi, 2022) [32].

In order to reduce mortality, morbidity, and the rate of unplanned hospitalizations, nurse-assisted self-efficacy and adherence have demonstrated efficacy in controlling unhealthy health behaviors by improving medication adherence, doing exercise, modification of dietary behavior, smoking cessation, and psychological well-being. The nurse helped currently, international recommendations regard cardiac rehabilitation, including self-efficacy and adherence, to be required. 90% of recurring cardiac events and mortality will be reduced when cardiac rehabilitation intervention is started following an initial myocardial infarction (Khan *et al.*, 2024) [18].

Applying critical thinking to patient care while working with a rehabilitation group to assist patients' enhancement, maintain, regain their health as well as achieve the greatest possible standard of living is known as nurse-supported self-efficacy and adherence. Secondary prevention, behavior modifications such as engaging in physical activity, maintaining a healthy diet, quitting smoking, managing stress, and medication adherence are all ways to improve wellbeing year of life and lower mortality as well as rates of readmission. (Gutenbrunner, 2022) [13]. As the lead researcher, the nurse works with the team to help patients who have had myocardial infarction adhere to changes in health-related behavior as: level of physical activity, medication adherence to regulate blood pressure and a diet chart authorized by a dietician and cardiologist. (Khan *et al.*, 2024) [18].

Significance of the study

The leading cause of death for both men and women worldwide is coronary artery disease (CAD). Acute myocardial infarction (AMI) primarily affects people over 45. Due to unhealthy habits including smoking and addiction, as well as sedentary and stressful lifestyles, the occurrence of ST segment elevation myocardial infarction (STEMI) in young patients is rising in emerging nations. Males experienced STEMI more frequently than females. The most prevalent risk factor is smoking (Shehata, 2020) [33].

Atherosclerotic plaque blockage causes over one million deaths annually in the United States, and the prevalence of MI has approached three million worldwide. Patients with atherosclerosis who have ischemic heart disease have a seventy percent death rate (Tajabadi, 2022) [35].

Egyptian STEMI patients were younger, more likely to be smokers and diabetics, and had more self-presentations than Emergency Medical Services (EMS) presentations. They also had longer wait times between the beginning of symptoms and their first medical encounter. In Egypt, thrombolytic therapy continues to be the most widely used treatment, whereas main 6. Half of the patients had percutaneous coronary intervention (PCI). Hospital mortality was considerably greater in Egypt, with the

highest rate among patients without reperfusion and the lowest among those undergoing PCI (Shaheen, 2020) [31].

Complex therapy management for MI illness involves maintaining a healthy lifestyle in addition to taking medications as prescribed. Since self-efficacy originates with the person who experiences the effects of the disease, it is crucial in the management of CAD. This is enhanced by the drive to adopt better health management practices and make better decisions regarding their care (Wantiyah, 2020) [38].

Purpose of the study

Demonstrate nursing protocol to improve self-efficacy adherence for Patients with myocardial infarction.

Research hypotheses

H1: Patients' physical activity adherence would improve after applying the nursing protocol.

H2: Patients' nutrition adherence would improve after applying the nursing protocol.

H3: Patients' medications adherence would improve after applying the nursing protocol.

Subjects and Methods

Research Design

The quasi-experimental design was utilized to complete the aim of this research.

Setting

This research was carried out in Cardiothoracic Minia University Hospital's CCU and cardiology outpatient clinic at New Minia City, Egypt.

Study Duration

The data were gathered over eight months beginning from May 2022 to December 2022.

Subjects

A purposive sampling of 80 patients who are adults (male and female) newly diagnosis with myocardial infarction and met an inclusion criterion was assigned in the present research. The patient was randomly selected into study group. The Isaac and Michael (1995) formula, which is determined as $(N = n \times 30/100)$, determines the number of participants that offer the required sample size.

- $N =$ Size of the Sample
- $n =$ Total number of 269 patients who are adults with myocardial infarction were treated at Cardiothoracic Minia University Hospital during the 2019-2020 academic year.
- $N = 269 \times 30 / 100 = 80$ patients who are adults
- Study of 80 patients who are adults.

Inclusion Criteria

Myocardial Infarction (MI) Patient who has recently been diagnosed.

Exclusion Criteria the Patients excluded if

1. Mentally ill
2. End stage of liver and renal disease

Tools of Gathering Data

Four tools were designed to assess demographic, adherence to physical activity, nutrition and medication, demographic interview was created by the researcher post updating a thorough literature review, the remaining three tools adapted from (Yoza *et al.*, 2009) [40], (Lawton & Brody, 1969) [20], Timby & Smith (2014) [36], (Nayeri, 2019) [27], (Morisky *et al.*, 2008) [24].

Tool I: Questionnaire for Structured Interviews

This instrument, which contains two primary sections, was created by the researcher following revision of a thorough literature review that was gathered during the initial interview:

1st part –Demographic data (As age, marital status, sex, occupation as well as level of education, etc.)

2nd part- Medical data (As past medical as well as family history, body weight, height, BMI).

Tool II: Physical Activity adherence Sheet

This tool involved two parts

Part 1: The Activity of Daily Living (ADL)

This sheet adapted from (Yoza *et al.*, 2009) [40], (Lawton & Brody, 1969) [20] and changed by the researcher. Assessing impairments in activity of daily living to identify improvement or deterioration over time. This sheet is consistent of 17 items after jury modification

Scoring system: the ADL categorized into: Not at all = 4, slight =3, sever =2, very sever = 1, Maximally severe=0. The total score was range from 0 to 68.

The level of patients` adherence to activity was categorized as satisfaction (equal or above 60 %) and un satisfaction (below 60%) (Metwaly *et al.*, 2020, Ueno *et al.*, 2018) [23, 37].

This sheet was collected three times pre (before provide nursing protocol from the second and third day from admission, post after 6 weeks and follow up after 12 weeks).

Part 2: Range of Motion (ROM) checklist

It was adapted from Timby & Smith (2014) [36] to assess patients' ability to perform range of motion in 12 joints, (neck, shoulder, elbow, forearm, wrist, finger, thumb, hip, knee, ankle, toes and spine).

Scoring system: Every item was observed, categorized, and given a score: two for correctly completed work, one for incorrectly completed work, and zero for not completed work. The overall score fell between Zero and twenty- four.

All items' total scores were assessed as follows: Level of practice that is satisfactory (equal to 60% and more), while unsatisfactory level was considered from (less than 60%) (Metwaly *et al.*, 2020, Ueno *et al.*, 2018) [23, 37].

This sheet was collected three times (second and third day from admission, and after six weeks and follow up after twelve weeks).

Tool III: Nutrition Adherence sheet for Myocardial Infarction

This sheet adapted from (Nayeri, 2019) [27] and modified by the researcher. Nutrition adherence sheet provides information on the assessment of adherence to diet for

patients with myocardial infarction. It was consistent of 16 items. The total score was range from 16 to 80.

Scoring system

The tool was be categorized into the 5 possible responses to nutrition adherence sheet items were “Always” (Indicate 5 score), “Often” (Indicate 4 score), “Sometimes” (Indicate 3 score), “Rarely” (Indicate 2 score), and “Never” (Indicate 1 score). The level of patients` adherence was be satisfactory (60% and more) and unsatisfactory (Less than 60%) (Metwaly *et al.*, 2020) [23], (Ueno *et al.*, 2018) [37].

This sheet was bundled three times (pre) in the second and third day from admission, (post) after six weeks and (follow up) after twelve weeks).

Tool IV: Medication Adherence sheet for Myocardial infarction

This sheet adapted from (Morisky *et al.*, 2008) [24], (Nayeri, 2019) [27] and modified by the researcher. This sheet was consistent of 14 items after jury modification such as: do you forget to take your medication, miss taking their medication for causes other than forgetting over 2weeks. The total score was range from 0 to 56.

Scoring system

This was be categorized and scored into: four for never/ rarely, three for once in a, two for sometimes, one for usually, and zero for all the time.

The level of patients` adherence to medication was categorized as satisfactory (60% and more) and unsatisfactory (less than 60%) (Metwaly *et al.*, 2020, Ueno *et al.*, 2018) [23, 37].

This sheet was collected three times (pre in the 2nd and 3rd day, post after six weeks and follow up after twelve weeks).

Validity and Reliability

Five professionals in the field of medical surgery nursing staff reviewed the instruments to ensure their validity (Minia University).

Pilot study

To determine the viability, impartiality, and suitability of the data collection instrument, pilot research was carried out on ten percent (8 patients) of the research sample. There were no changes made in response to the pilot study's findings.

Ethical Consideration

The dean of the faculty, the head of the hospital for cardiothoracic surgery at Minia University, the director of the CCU, and the ethical committee of the nursing faculty—which consists of six members—all officially approved the study's conduct. The subjects were given information regarding the study's nature, advantages, process, aim, and follow-up, and they were free to discontinue participation at any moment without providing a reason. Subjects gave their written and verbal agreement after being informed that the data they provided would not be used in any future studies without their approval. By encrypting all data and safeguarding the collected information, each subject's confidentiality and anonymity were guaranteed.

Field Work: It was execution in the three phases:

A. Preparatory phase

In this phase, the data collection instruments are developed by reviewing the current and pertinent related literature and theoretical understanding of the many related elements using textbooks, articles, and monthly magazines.

B. Assessment and planning phase

The selected sample was admitted to the critical care unit (CCU). Patient who met the inclusion criteria and had myocardial infarction (MI) has recently been diagnosed was interviewed by the researcher individually to introduce myself to explain the aim as well as nature of the research.

C. Implementation phase

Data collection from the study group

First, individual patient interviews were conducted to collect medical and sociodemographic information, (Interview a patients 3 days per week) through the morning as well as evening shifts and follow up in cardiology outpatient clinics for evaluation post applying nursing protocol (after six weeks and follow up (After twelve weeks), it was given in 5 sessions (2 sessions every day) the time of every session take from 45-60 minutes. The 1st session was theoretical. This was succeeded by four practical training sessions covering the necessary procedures nursing procedure, The 2nd session about physical activity (Tool 2 part 1) and the 3rd session about range of motion exercises for all joints (tool 2 part 2). The demonstration and redemonstration was to ensure that the nurses can applied these procedures competently and the investigator will evaluate it by utilize the second tool (Physical activity sheet). The 4th session about nutrition followed by the five sessions about importance of adherence to medication. Each patient was given a copy of the booklet to utilize for future reference. - However, the critical care unit's nursing staff was taught by the researcher as co-investigators who worked in the same study setting to follow up with the study group that used the self-efficacy nursing procedure at the appropriate time during their particular work shift. Moreover, telephone calling for follow up for the applying of nursing protocol which include (Adherence for physical activity and range of motion, nutrition and medication) during frequency between posttest (six weeks) and follow up test (Twelve weeks).

D. Evaluation phase

- This phase was start after the second day of admission before (Pretest) and follow up implementation of nursing protocol (Posttest after 6weeks & (After 12 weeks).
- To determine how well the patients had understood the instructions from the previous session and to help them learn them thoroughly, a few questions were asked at the start of each session.
- If necessary, the discussed instructions were reiterated to assist the patient in resolving any confusion or issues.

III-Administrative design

The director of the cardiothoracic care unit at Minia University Hospital, which is linked with Minia University, formally granted authorization. The researchers and nursing administration staff met and had discussions to better inform them of the goals and objectives and to improve collaboration throughout the implementation stage.

Limitations of the study

Despite the researcher's description of the study's goal, doctors and nurses initially refused to cooperate.

IV. Statistical design

Statistical analysis of data

Descriptive statistics like frequency distribution, percentages, averages, and standard deviations to gauge dispersion were used to compile, tabulate, and display the data. The test of significance found in standard statistical books (162) was included in the statistical package for the social sciences (SPSS), version (20), which was utilized for statistical analysis of the data. The mean and SD were used to express numerical data. Frequencies and percentages were used to express the qualitative data. The degree of significance is the probability (P-value). A significance level of less than 0.05 was applied. The more important the finding, the lower the P-value (*). The Pearson correlation test was used to determine the correlation coefficient, and a value of less than 0.001 was deemed highly significant (**). In the current study, two distinct means among the study groups were compared using an ANOVA test.

Results

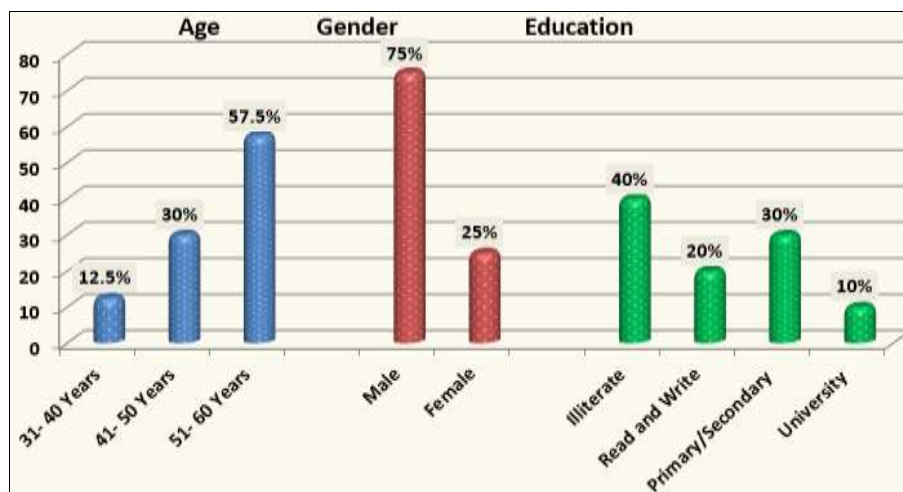


Fig 1: Percentage Distribution of Groups Regarding Their Socio-demographic Data (n=80)

Figure (1) clarifies that over than half of patients (57.5%) were within the age group of 51–60 years. Three-quarters of

them were males (75%) & 40 percent were illiterate.

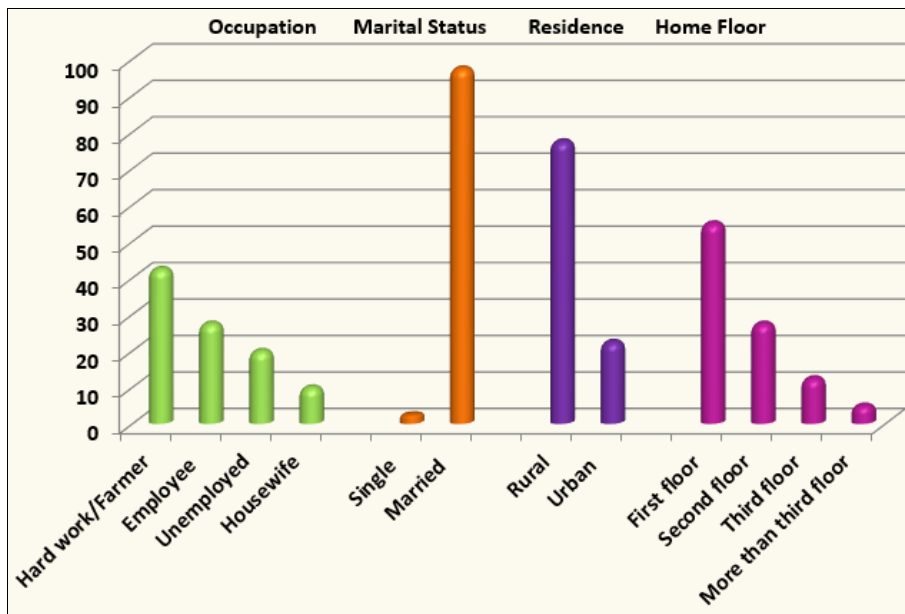


Fig 2: Percentage Distribution of Groups toward Their Socio-demographic Data (n=80)

Figure (2) displays that 97.5% of the studied patients were married. As residence, it was seen that above three quarters (77.5%) come from rural areas. In relation to occupation, it

showed that around half (42.5%) of the patients were farmers. Also, the table revealed that (55%), above half of the patients lived on the first floor.

Table 1: Distribution of Groups toward Their Medical Data (n=80)

Medical Data	Study Group (n=80)	
	No.	%
Chief Complain		
Cardiac Complain	40	50
Respiratory Complain	20	25
Gastrointestinal Complain	10	12.5
Sweating, Fatigue and Weakness	10	12.5
Past Medical History		
Hypertension	40	50
Diabetes Mellitus	8	10
Hypertension & Diabetes Mellitus	28	35
Coronary artery disease & heart failure	4	5
Smoking		
Yes	44	55
No	36	45
Family History		
MI Family History	24	30
Cardiovascular Disease	16	20
Hypertension	22	27.5
- Diabetes Mellitus	18	22.5
BMI		
18.5-24.9 "Normal Weight"	15	18.7
25-29.9 "Overweight"	36	45
> 30 "Morbid Obesity"	29	36.3

Table (1) Demonstrates that half of the studied patients (50%) had a cardiac complain, suffering from hypertension and (55%) of them were smokers and one third (30%) had MI family history. Also, the table revealed that (45%), nearly half of the studied group were overweight.

among study group regarding their nutrition adherence during post 6 weeks and 12 weeks constituted (100% & 92.5%) respectively, after implementing nursing protocol. comparing with pretest while satisfactory level among them before implementing nursing protocol constituted (0 %).

Figure (3): presents that there is a raise in satisfactory level

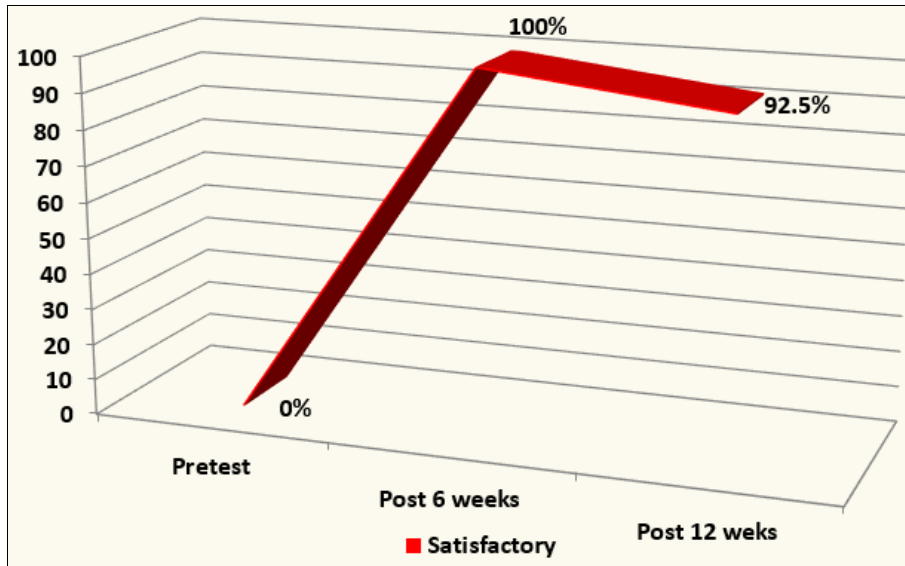


Fig 3: Distribution of the Study Group toward Their Total Score of Nutrition Adherence Satisfactory Level Pre- and Post-Implementing Nursing Protocol (n=80)

Table 2: Distribution of the Study Group toward Their Total Score Activity of Daily Living Satisfactory Level Pre- and Post-Implementing Nursing Protocol (n=80)

Total Score of Activity of Daily Living	Study Group(n=80)						Friedman Test (P value)
	Pretest		Follow Up Post Implementing Nursing Protocol				
	No	%	Post 6 Weeks		Post 12 Weeks		
Satisfactory	0	0	80	100	74	95	56.2 (0.001**)
Un Satisfactory	80	100	0	0	6	5	

** Highly statistical significant differences ($p < 0.01$)

Table (2) Clarify that the highest percentages include all participants(100 percentage) of studied group were Satisfactory regarding their total score of activity of daily living during post 6 weeks and ninety five percentages (95 percentage) during post 12 weeks after implementing nursing protocol comparing with the pretest which all

participants (100%) of study group were unsatisfactory. There was a highly statistically significant difference among studied group regarding to their total score activity of daily living pretest, post 6 weeks and 12 weeks after implementing nursing protocol.

Table 3: Distributing the Study Group toward Their Total Score of Their Medication Adherence Satisfactory Level Pre- and Post-Implementing Nursing Protocol (n=80)

Total Score of Medication Adherence	Study Group (n=80)						Friedman Test (P value)
	Pretest		Follow Up Post Implementing Nursing Protocol				
	No	%	Post 6 weeks		Post 12 week		
Satisfactory	0	0	80	100	72	90	62.2 (0.001**)
Unsatisfactory	80	100	0	0	8	10	

** Highly statistical significant differences ($p < 0.01$)

Table (3): Demonstrates that the highest percentages include all participants (100%) of study group were satisfactory regarding their medication adherence during post 6 weeks and ninety percentages (90%) during post 12 weeks after implementing nursing protocol comparing with the pretest

which all participants (100%) of study group were un satisfactory. There was a highly statistically significant difference among study group regarding to their medication adherence pretest and post 6 weeks and 12 weeks after implementing nursing protocol.

Table 4: Correlations between Nutritional Adherence as well as Performance of Activity of Daily Living and ROM among Study Group (n=80)

Variables	Nutritional Adherence	
	r	P
Activity of daily living	0.901	0.001**
Range of motion performance	0.987	0.001**

** Highly statistical significant differences ($p < 0.01$)

Table (4) shows that there is a highly statistically significant positive correlation between nutritional adherence, activity of daily living and range of motion performance among the study group.

Table 5: Correlations between Medication Adherence as well as Performance of Activity of Daily Living and ROM among Study Group (n=80).

Variables	Medication Adherence	
	r	P
Activity of Daily Living	0.920	0.001**
Range of Motion Performance	0.984	0.001**

** Highly statistical significant differences ($p < 0.01$)

Table (5) shows that there is a highly statistically significant positive correlation between medication adherence, activity of daily living and range of motion performance among the study group.

Discussion

Among the top 10 causes of mortality, cardiovascular disorders were responsible for fifty-five percent of the 55.4 million fatalities that occurred globally. Ischemic heart disease accounts for sixty percent of all deaths worldwide, making it the leading cause of death. Deaths from this disease have increased the most since 2000, increasing by almost 2 million to 8.9 million in 2019 (Erfan, 2022) [10].

Self-efficacy, as used in the healthcare industry, is the belief in one's own ability to manage a chronic illness or modify a health-related behavior. Self-efficacy can have a significant impact on our ability to meet important life or health objectives. One instance of low self-efficacy is when a patient realizes that quitting smoking is important for their health but lacks confidence in their ability to do so because of their prior attempts. Until their sense of poor self-efficacy improves, this lack of confidence prevents them from feeling in control and might prevent them from even trying to quit again (Metwaly & Zaton, 2020) [23].

Regarding the demographic characteristics and medical data of the studied group

Regarding age, the actual research shows that above half of the study sample patients were above 50 years, have MI respectively. From the viewpoint of the researcher, this is related to the risk of myocardial infarction increases with age among Egyptian populations because the risk of hypertension elevated with age and it is considered the main risk factor for MI in Egypt and this could be brought on by frequent exposure to stress and responsibilities in life.

This result was in agreement with Wojtyniak *et al.*, (2020) [39] reported, similar observations with regard to a decline in relative survival with increasing age. Also, Rahimah (2020) [29] stated that, personnel who are above Forty-five years have eight times more risk for AMI, and low ten percent of the personnel under the age of Forty-five years would have AMI.

Moreover, other research, Saad *et al.* (2020) [30] refuted these findings, showing that the study group's mean age was 44.21 ± 8.01 , while the control groups was 45.71 ± 10.42 , with over half of the study group and over one-third of the control group falling into the same age range of 40 to under 50.

As regards gender, according to the researcher, three-quarters of the patients in this study were men because most of them were active smokers and male patients were more likely to be at risk in their workplace. This outcome is in accordance with According to Saad *et al.* (2020) [30], men made up less than two-thirds of the study and control groups (62 and 62%, respectively). This outcome also supports the findings of Keshavaraz *et al.* (2020) [17], who reported that the majority of MI patients in both the intervention and control groups were men. Cheng *et al.* (2019) [7] noted that the bulk of the study sample was female, which contradicts this result.

Concerning educational level, this research revealed that above third of the study group were illiterate. From the researcher's perspective, in general, patients with lower socioeconomic status and less formal education tend to be having more advanced diseases, education raises knowledge of illnesses and improves one's capacity to identify all aspects of a treatment plan. Egyptian rural culture in the past does not allow individuals to attend or complete their educational level which contributed to a lack of familiarity with perception of warning signs as well as risk factors of myocardial infarction. This finding corroborated the findings of Almamari *et al.* (2019) [2] who stated, that most of the participants had no formal education. Also agree with Mtawea (2023) [25], who found that around thirds of them were not read or writes,

Barham *et al.* (2019) [4] reported, that less than half of their study participants had just completed primary school, which contradicts this finding. Additionally, Huriani, (2019) [14] discovered that most often has a greater degree of education, which contradicts this result.

According to their occupation around half of them were farmer. This is congruent with Irwindi, (2020) [15] stated that the majority of respondents are farmers While, these results are in disagreement with Barham *et al.* (2019) [4], who stated that most of them were unemployed.

Concerning marital status, Married people made up the largest share of the study group in this particular study. According to the researcher, married people are more likely than single people to have heart problems since they are always under psychological stress from their social roles. Additionally, this result is consistent with Saad (2020) [30], revealed that almost two-thirds of the patients in the study were married.

Concerning residence, according to the researcher, the fact that over three-quarters of the study group resided in rural areas may be because there aren't any specialized facilities in these locations. This supports the findings of Loccoh *et al.* (2022) [21], who reported that cardiovascular death rates are greater in rural than in urban areas in the United States. Numerous issues, such as limited access to urgent care facilities and lower-quality care, impair the cardiovascular health of those living in rural areas.

This finding is at odds with Chen (2020) [6], who found that residing in cities with more green space was linked to a decreased incidence of AMI, HF, and cardiovascular death. contradict Mtawea (2023) [25], who discovered that the bulk of the study sample came from an urban location.

It is evident from the major complaint that half of the individuals in the study fifty percent had a heart complaint. This result is consistent with that of Fathima (2021) [11], who

reports that intense and prolonged chest discomfort, frequently accompanied by dyspnea, nausea, and sweating, is one of the clinical signs of myocardial infarction.

According to the current study's findings regarding past medical history, over half of the study group had hypertension, and over a third had both diabetes and hypertension. This finding is consistent with that of Khorshid *et al.* (2019) ^[19], who noted in their study that hypertension was present in the majority of their patients.

Furthermore, according to Rahimah (2020) ^[29], hypertension was the greatest risk factor and was found to be a powerful and independent risk factor for the development of AMI.

Similar findings were corroborated by Metwaly & Zatton (2020) ^[23], who reported that all of the patients in the study had diabetes and hypertension, and that roughly two-thirds of the patients had acute start of disease.

They discovered that only two-fifths of the sample under study had hypertension, which contradicts the findings of (Park, 2019) ^[18]. This could be because one of the main risk factors for coronary artery disease is hypertension. This, however, contradicts the findings of Maddison *et al.* (2019) ^[22], who discovered that a small percentage of the group under study had diabetes mellitus.

As regards to family history one third among study group has positive family history for MI. These findings were congruent with Naqvi (2023) ^[26], who found that more than half has a positive family history of CAD and had a history of ischemic heart disease and the majority had a history of hypertension. While Metwaly & Zatton (2020) ^[23], found that the majority of patient didn't have family history of disease.

According to body mass index: Nearly half of the patients were overweight and more than one third have morbid obesity". This result is agreed with Chew (2022) ^[8], who showed that Due to the presence of excess visceral fat and a higher risk of diabetes mellitus, hypertension, and hyperlipidemia, obesity is a known risk factor for metabolic disease. This raises the risk of cardiovascular conditions, such as AMI, and it has been shown that men who are obese are 1.8 times more likely to have an incident AMI and 1.6 times more likely to die from cardiovascular disease than men who are of normal weight.

Also, Johansen (2021) ^[16], stated that Individuals with obesity have higher concentrations of very low-density lipoprotein (VLDL) cholesterol and increased risk of MI. Additionally, it accounted for around half of the increased risk of myocardial infarction in patients with greater BMI. However, this outcome contradicts the findings of Bay *et al.* (2018) ^[5], who indicated that the study sample's body mass index assessment was normal.

The current study demonstrates that there is highly statistically significant enhancement in healthy diet intake after implementing nursing protocol. This result was in accordance with Metwaly (2020) ^[23], who realized that after following a nursing regimen that included limiting saturated fat, limiting salt, and increasing intake of fruits and vegetables, the majority of patients were able to control their diet.

There was a highly statistically significant positive correlation between medication adherence, activity of daily

living, nutrition and range of motion performance among the study group, this agrees with (Shi *et al.*, 2023) ^[34]. Stated that following the delivery of structured educational interventions, patients with CHD are three times more likely to follow a healthy diet, which leads to an overall improvement in health behavior modification related to physical activity, diet, and medication adherence. There was also a noticeable shift in the amount of physical activity and medication adherence, and there was a chance that these would be maintained (Shi *et al.*, 2023) ^[34]. Also (Amini *et al.* (2021) ^[3], said that the improvement of diet and physical activity status indicates the positive effect of designed nursing protocol.

There is a highly statistically significant increase in the scores of performing ROM exercises for all joints post implementing nursing protocol among the study group. This agrees with Irwindi (2020) ^[15] who state that range of motion exercise can alleviate vascular paralysis, improve blood flow to the heart and extremities, avoid contractures and muscular atrophy, and make the client more comfortable.

Regarding physical activity adherence There was a highly statistically significant difference among studied group regarding to their total score activity of daily living pretest, post 6 weeks and 12 weeks after implementing nursing protocol, this could be because education influences patients' beliefs and behaviors to accept their illness and change their lifestyle in accordance with the recommended treatment regimen. These findings were consistent with German (2020) ^[12], who found that subclinical myocardial injury (SC-MI) and poor physical activity (PA) were both independently linked to an increased risk of CVD mortality. According to the researcher, the patient's poor performance before to the intervention showed that they needed to be educated about physical activity performance, but when the physical activity was implemented and the benefits on circulation were explained, adherence increased.

In line with Zakeri (2020) ^[41], who demonstrated that treatment adherence is one of the behaviors linked to successful outcomes after a MI, which results in successful treatment of the disease, there was a highly statistically significant increase in the percentages for all components of medication adherence after implementing nursing protocol. Noncompliance with treatment raises the risk of death, complications or worsening of the illness process, and medical expenses. The majority of the patients in the study did not comply to their treatment plans, according to (Metwaly & Zatton, 2020) ^[23].

Conclusion

Based on the study findings, it can be concluded that there is a highly statistically significant positive correlation between nutritional adherence, activity of daily living and range of motion performance among the study group and that there is a highly statistically significant positive correlation between medication adherence, activity of daily living and range of motion performance among the study group.

Recommendations

The researcher proposed the following in light of the current research's findings:

Nurses

Designing program in-service training education for nurses to upgrade nurses' knowledge as well as practice toward importance of patient adherence to physical activity, ROM, nutrition & medication for myocardial infarction patient.

Patients

- Attend health education programs about self-efficacy to enhance adherence to physical activity, ROM, nutrition & medication adherence for myocardial infarction patient.
- Formulate a standard of nursing guidelines booklet for patients with the myocardial infarction.
- Designed brochure includes patient instruction about how to avoid occurrence of MI.

Further Research

- Replication of the current study on a larger sample size to generalize the results.
- Encourage other researchers about nurse's role in improving self-efficacy for myocardial infarction patient.

References

1. Ahmadi Z, Abolhassani S, Hasheminia A, Kheiri S. The effects of a multimedia education on self-efficacy and self-esteem among patients with acute coronary syndrome: a clinical randomized trial. *Iran J Nurs Midwifery Res.* 2022;27(3):181-187.
2. Almamari RS, Lazarus ER, Muliira JK. Information needs of post myocardial infarction patients in Oman. *Clin Epidemiol Glob Health.* 2019;7(4):629-633.
3. Amini R, Rajabi M, Azami H, Soltanian A. The effect of self-management intervention program on the lifestyle of post-myocardial infarction patients. *J Educ Health Promot.* 2021;10:1-6.
4. Barham A, Ibraheem R, Zyoud SEH. Cardiac self-efficacy and quality of life in patients with coronary heart disease: a cross-sectional study from Palestine. *BMC Cardiovasc Disord.* 2019;19(1):01-12.
5. Bay A, Sandberg C, Thilén U, Wadell K, Johansson B. Exercise self-efficacy in adults with congenital heart disease. *Int J Cardiol Heart Vasc.* 2018;18:7-11.
6. Chen H, Burnett RT, Bai L, Kwong JC, Crouse DL, Lavigne E, *et al.* Residential greenness and cardiovascular disease incidence, readmission, and mortality. *Environ Health Perspect.* 2020;128(8):087005.
7. Cheng HY, Chair SY, Wang Q, Cao X, Cheng L, Lee IF. Measuring exercise self-efficacy in Hong Kong Chinese adults with cardiovascular risk: Validation of a Chinese version of the cardiac exercise self-efficacy instrument. *Res Nurs Health.* 2019;42(2):148-154.
8. Chew NW, Kong G, Venisha S, Chin YH, Ng CH, Muthiah M, *et al.* Long-term prognosis of acute myocardial infarction associated with metabolic health and obesity status. *Endocr Pract.* 2022;28(8):802-810.
9. Elkashef SF, Nasr NM, Khalil MB. Lifestyle changes among patients with myocardial infarction. *Egypt J Health Care.* 2022;13(4):435-448.
10. Erfan NM, Mostafa Rageb M, Said Taha A, Mohamed Hamed S. Effect of an educational program on self-efficacy for patients with myocardial infarction. *J Nurs Sci Benha Univ.* 2022;3(1):1013-1028.
11. Fathima SN. An update on myocardial infarction. *Curr Res Trends Med Sci Technol.* 2021;1:1-5.
12. German C, Ahmad MI, Li Y, Soliman EZ. Relations between physical activity, subclinical myocardial injury, and cardiovascular mortality in the general population. *Am J Cardiol.* 2020;125(2):205-209.
13. Gutenbrunner C, Stievano A, Nugraha B, Stewart D, Catton H. Nursing-a core element of rehabilitation. *Int Nurs Rev.* 2022;69(1):13-19.
14. Huriani E. Myocardial infarction patients' learning needs: Perceptions of patients, family members and nurses. *Int J Nurs Sci.* 2019;6(3):294-299.
15. Irwindi YA, Ni'mah L, Efendi F. The effect of range of motion exercise on blood pressure, pulse and sleep quality among hypertensive patients. *Int. J Innov Creat Change.* 2020;13(6):220-234.
16. Johansen MØ, Nielsen SF, Afzal S, Vedel-Krogh S, Davey Smith G, Nordestgaard BG. Very low-density lipoprotein cholesterol may mediate a substantial component of the effect of obesity on myocardial infarction risk: The Copenhagen general population study. *Clin Chem.* 2021;67(1):276-287.
17. Keshavaraz N, Naderifar M, Firouzkohi M, Abdollahimohammad A, Akbarizadeh MR. Effect of telenursing on the self-efficacy of patients with myocardial infarction: A quasi-experimental study. *Signa Vitae.* 2020;16(2):92-96.
18. Khan K. Nurse-led cardiac rehabilitation and behavioral health changes in myocardial infarction patients. *Res Med Sci Rev.* 2024;2(2):20-26.
19. Khorshid H, Abdeltawab A, Menshawy M, Zaki T. Cardiac rehabilitation after myocardial infarction: A comparison between the standard and home-based cardiac rehabilitation programs. *J Cardiol Curr Res.* 2019;12(1):12-19.
20. Lawton MP, Brody EM. Assessment of older people: Self-maintaining and instrumental activities of daily living. *Gerontologist.* 1969;9(3):179-186.
21. Loccoh EC, Joynt Maddox KE, Wang Y, Kazi DS, Yeh RW, Wadhera RK. Rural-urban disparities in outcomes of myocardial infarction, heart failure, and stroke in the United States. *J Am Coll Cardiol.* 2022;79(3):267-279.
22. Maddison R, Charles J, Stewart R, Benatar J, Whittaker R, Rolleston A, *et al.* Effects and costs of real-time cardiac telerehabilitation: randomized controlled non-inferiority trial. *Heart J.* 2019;105:122-129.
23. Metwaly EA, Zaton HK. Effect of health educational program on self-efficacy and therapeutic compliance among patients with myocardial infarction. *Egypt J Health Care.* 2020;11(2):214-228.
24. Morisky DE, Ang A, Krousel-Wood M, Ward HJ. Predictive validity of a medication adherence measure in an outpatient setting. *J Clin Hypertens (Greenwich).* 2008;10(5):348-354.
25. Mtawea HM, Mohamed Y, Ahmed Ebrahim E. Biopsychosocial needs for patients with myocardial infarction. *Egypt J Health Care.* 2023;14(2):407-424.
26. Naqvi SZ, Surksha MA, Kumar A, Punshi VK, Rai SKA, Memon NE, *et al.* The presentation delay and differences of symptoms manifestation in myocardial

- infarction patients with and without diabetes: a cross-sectional study. *Ann Med Surg (Lond)*. 2023;85(4):767.
27. Nayeri ND, Yadegary MA, Seylani K, Navab E. Development and psychometric evaluation of coronary artery disease treatment adherence scale. *Cardiol Ther*. 2019;8(1):103.
 28. Park HK, Kim KH, Kim JH, Song MK, Choi IS, Han JY. Comparison of obesity-related index and exercise capacity between center-based and home-based cardiac rehabilitation programs. *Ann Rehabil Med*. 2019;43(3):297-304.
 29. Rahimah AF, Pikir BS, Imatsu O. Correlation between wall motion score index (WMSI) and anatomical M-mode (AAM) systolic thickening with functional capacity in heart failure among post-myocardial infarction patients. In: *IOP Conference Series: Earth and Environmental Science*. 2020 Feb;441(1):012162.
 30. Saad NSE, El Ashery Ashery Asker R. Effect of digital cardiac rehabilitation program on self-efficacy of patients with coronary artery diseases. *Egypt J Health Care*. 2020;11(1):400-416.
 31. Shaheen S, Wafa A, Mokarab M, Zareef B, Bendary A, Abdelhameed T, *et al*. Presentation, management, and outcomes of STEMI in Egypt: results from the European Society of Cardiology registry on ST elevation myocardial infarction. *Egypt Heart J*. 2020;72:1-10.
 32. Shajrawi AM, Al-Smadi AM, Ashour A, Momani A, Al-Akash HY, Granat M, *et al*. The impact of type of acute myocardial infarction on cardiac patient self-efficacy after hospitalization. *Dimens Crit Care Nurs*. 2022;41(6):295-304.
 33. Shehata IE, Hatem B, Enein MW, Eldamanhory AS. Predicting preventive strategies of acute myocardial infarction in young patients in Egypt: An observational analytical study in the form of cross-sectional study. *J Indian Coll Cardiol*. 2020;10(1):22-29.
 34. Shi W, Ghisi GL, Zhang L, Hyun K, Pakosh M, Gallagher RJ. Systematic review, meta-analysis and meta-regression to determine the effects of patient education on health behaviour change in adults diagnosed with coronary heart disease. *J Cardiovasc Nurs*. 2023;32(15-16):5300-5327.
 35. Tajabadi M, Orimi HG, Ramzgouyan MR, Nemati A, Deravi N, Beheshtizadeh N, Azami M. Regenerative strategies for the consequences of myocardial infarction: Chronological indication and upcoming visions. *Biomed Pharmacol*. 2022;146:112584.
 36. Timby KB, Smith EN. *Introductory Medical-Surgical Nursing, care for clients with disorders of coronary and peripheral blood vessels*. 10th ed. Philadelphia: Lippincott Williams & Wilkins; 2014. p. 360.
 37. Ueno H, Yamazaki Y, Yonekura Y, Park MJ, Ishikawa H, Kiuchi T. Reliability and validity of a 12-item medication adherence scale for patients with chronic disease in Japan. *BMC Health Serv Res*. 2018;18(1):1-9.
 38. Wantiyah W, Saputra MR, Deviantony F. Self-efficacy and health status in coronary artery disease patients. *J Ners*. 2020;15(1):14.
 39. Wojtyniak B, Gierlotka M, Opolski G, Rabczenko D, Ozierański K, Gašior M, *et al*. Observed and relative survival and 5-year outcomes of patients discharged after acute myocardial infarction: the nationwide AMI-PL database. *Kardiol Pol*. 2020;78(10):990-998.
 40. Yoza Y, Ariyoshi K, Honda S, Taniguchi H, Senju H. Development of an activity of daily living scale for patients with COPD: the Activity of Daily Living Dyspnoea scale. *Respirology*. 2009;14(3):429-435.
 41. Zakeri MA, Khoshnood Z, Dehghan M, Abazari F. The effect of the continuous care model on treatment adherence in patients with myocardial infarction: a randomised controlled trial. *J Res Nurs*. 2020;25(1):54-65.

How to Cite This Article

Ramadan FB, Ali JS, Gamal LM, Mohamed YS, Elkhaliq EFA. Effect of nursing intervention on therapeutic adherence of patient with myocardial infarction. *International Journal of Advance Research in Nursing*. 2025; 8(1): 81-90.

Creative Commons (CC) License

This is an open-access journal, and articles are distributed under the terms of the Creative Commons Attribution-Non Commercial-Share Alike 4.0 International (CC BY-NC-SA 4.0) License, which allows others to remix, tweak, and build upon the work non-commercially, as long as appropriate credit is given and the new creations are licensed under the identical terms.