

Effect of an Educational Program on Self-Efficacy of Patient with Myocardial Infarction

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Abstract

Background: Myocardial Infarction (MI) is a common presentation of ischemic heart disease. Health education programs can improve the outcomes for different chronic conditions. An important mechanism in improving health status for participants in health education programs is the patient self-efficacy. **Aim of this study** was to evaluate the effect of an educational program on self-efficacy of patients with MI. **Subjects & Methods: Research Design:** A quasi experimental research design was used. **Setting:** The study was conducted in cardiac units of Cardiothoracic Hospital and outpatient cardiac clinic at Zagazig University Hospitals. **Subjects:** composed of fifty adult patients, purposeful selected from both sexes according to inclusion and exclusion criteria. **Tools of data collection:** Three tools were used to collect the data; interviewing assessment questionnaire, needs assessment questionnaire and self-efficacy scale. **Results** revealed that, the highest percentage were male more than 50 years, 92.5% having co-morbid disease mainly hypertension. There were statistically significant improvements in patients' knowledge, patients' practice and self-efficacy ($p < .001$) which continued through follow-up. **Conclusion:** The study demonstrated statistical significant improvement of patients' knowledge, practices and their self-efficacy in post and follow up program phases compared to pre program phase, but some slight decline occurred in the follow up program phase compared with post phase. **Recommendations:** Self-efficacy of patient should be more considered and evaluated during the plan for treatment by trained nurse.

Key words: Myocardial infarction, self-efficacy, Health educational program.

Introduction:

Coronary Heart Disease (CHD) is the main cause of death in many countries. One of the most common manifestations of CHD is Myocardial Infarction⁽¹⁾. Recent reviews suggest that self-management support can improve the outcomes for different chronic conditions. An important mechanism in improving health status for participants in self-management programs are patient self-efficacy, or a patient's engagement and belief in his or her ability to carry out or change behavior necessary to the desired goal⁽²⁾.

A heart attack or MI can occur when coronary arteries become blocked due to Coronary Artery Disease (CAD). This blockage is due to a build-up of fat-like deposits (plaque) on the artery walls. This process is called atherosclerosis. As

plaque builds up, the artery narrows and blood flow is reduced⁽³⁾.

The incidence of MI increase with age; however, the actual incidence is dependent on predisposing risk factors for atherosclerosis, approximately 50% of all MIs in the united states occur in people younger than 65 years. However, in the future, as demographics shift and the mean age of the population increase, a larger percentage of patients presenting with MI will be older than 65 years⁽⁴⁾.

Health educational program is a vital part for nurses. The promotion, maintenance, and restoration of health require that the patient receive a practical understanding of health related information and how to cope with illness. The health education programs are designed to meet the

patient's needs or problem affecting his health. Generally, these programs involve educating patients about health promotion, illness prevention, and treatment^{(5) & (6)}.

Self-efficacy beliefs are an important aspect of human motivation and behavior as well as influence the actions that can affect one's life. Regarding self-efficacy, it refers to beliefs in one's capabilities to organize and execute the courses of action required to manage prospective situations^{(7) & (8)}.

Significance of the study

MI is a common presentation of Ischemic Heart Disease/CAD. (CHD) is the most common type of heart disease, killing over 370,000 people annually (9). According to the latest World Health Organization data published CHD death in Egypt reached 107,232 or 23.14% of total death⁽¹⁾.

Aim of the study:

The aim of the study was to evaluate the effect of an educational program on self-efficacy for patient with MI through the following objectives:

- 1- Assess the patient's needs (Physical, Psychological, Socio-economic and spiritual), Knowledge and practice.
- 2- Asses the self-efficacy of patients with myocardial infarction.
- 3- Design and implement an educational program according to patient's need.
- 4- Evaluate the outcome of the educational program.

Research hypothesis:

The hypothesis of the study was:

H₁: The mean knowledge scores of patients post-program are higher than that of their pre-program scores.

H₂: The mean practice scores of patients post-program are higher than that of their pre-program scores.

H₃: Positive outcome of the training program on improvement of patient needs and his self-efficacy.

Subjects and methods:

Research design:

A quasi experimental design was conducted to achieve the aim of the study.

Study setting:

The study was conducted at Cardiothoracic Hospital in cardiac intensive care units, admission cardiac units and outpatient cardiac clinics at Zagazig University Hospital.

Study subjects:

Patient hospitalized in the study setting during the period of the study was eligible for inclusion in the study sample if fulfilling the following criteria:

Inclusion criteria

- Patients from both genders.
- Patients having any type of MI.
- Conscious patients.
- Patients able to communicate.
- Patients having the willing to participate in the study and attend all the program sessions.

Tools of data collection:

Three tools will be utilized for data collection:

Tool I: Patient interviewing assessment questionnaire:

It was designed by the researcher after reviewing related literature. The questionnaire covered three parts as the following:

- a- **Socio-demographic Data:** Concerned with assessment of Socio-demographic characteristics of the patients include age, gender, marital status, educational level, work, housing status, financial income, and source of treatment.

b- Past and family history assessment questionnaire:

Concerned with assessment of past and family history of the patients. It was contained eight questions as the following: Four questions about past history and another four questions about smoking, exercise, family history of cardiac disease and degree of relationship.

c- Present history assessment questionnaire:

concerned with assessment of present medical history. It was contained five questions about chief complaints, present complication, type of present complication, medication taken and drug allergy.

Tool II: Patient's needs questionnaire

. Pre/ Post/ follow up test: It was developed by the researcher under supervision and based on literature review to assess the patient's needs. It was contained 3 parts, the first part to assess patient's (physical, psychological, socio-economic and spiritual) needs, the second part to assess patient's knowledge and the third part to evaluate patient's practice.

a- Patient's (Physical, Psychological, Socio-economic and spiritual) needs:

It was contained four parts with eighty two questions include assessment of physiological health needs covered eleven items with total of 50 questions, assessment of psychological needs composed of 13 questions, socio-economic needs assessment include 11 questions and 8 questions for assessment of spiritual needs. Each question answered by low effect, severe effect or not applicable and scored as the following: "zero" for not applicable, "one" for Minimum effect and "two" for sever effect. The general patients' needs are classified into severe or high effect if the score is $\geq 60\%$ from the

maximum score and minimum or no effect if it is $< 60\%$.

b- Patient's knowledge assessment questionnaire:

It was consisted of 12 questions as MCQ; and enumerate covered the Patients' knowledge about definition, manifestations, diagnosis, line of treatment, medical treatment, medication side effects, surgical management, complications, nutrition, daily activity, exercises, and follow up. Each question is scored "zero" for the incorrect or non choice answer and "one" for the correct answer, and these points are counted for each patient. The general patients' knowledge is classified into satisfied knowledge if the score is $\geq 60\%$ from the maximum score and unsatisfied knowledge if it is $< 60\%$.

c- Observational checklist to assess Patient's practice

It was developed by the researcher to assess patients' practice. It was covered fourteen procedures with ninety three items include: Oxygen therapy at home, breathing and coughing exercise, measuring the pulse rate and rhythm, assessment of Jugular vein distension, measuring fluid intake and output, daily weight measurement, measurement of discomfort associated with activity, pain assessment, fatigue measurement, measurement of anxious and worries, maintain bowel elimination, diet regimen, skin care and optimizing self care. Each item is scored "zero" for not done and "one" for done with the correct way; and these points are counted for each patient. The general patients' practice is classified into satisfied practice if the score is $\geq 60\%$ from the maximum score and unsatisfied practice if it is $< 60\%$.

Tool III: Chronic disease Self-Efficacy Scale:

It was developed and tested by Stanford chronic disease self

management study then modified by the researcher to evaluate patient's confidence in doing certain activities. It includes ten parts with twenty nine items covered patients' confidence to exercise regularly, getting information about disease, obtaining support from family, friends and community, communication with physician, managing disease in general, routine home activity, recreational and social activities, manage symptoms, manage difficulty in breathing, and control or manage depression . Each question answered by selecting the number from 0 to 10, 0 mean no confidence at all and 10 is the highest confidence level. The general patients' self-efficacy is classified into satisfied self-efficacy if the score is $\geq 60\%$ from the maximum score and unsatisfied self-efficacy if it is $< 60\%$.

Health education program: It was developed according to previously assessed needs of patients with MI and designed as a booklet in Arabic Language by the researcher based on the related literature and expertise opinions.

Content validity & reliability:

The tools were reviewed by a panel of 5 professors in nursing and 2 cardiologist to ascertain their content validity. The tools were also reviewed for clarity, relevance, comprehensiveness, applicability, and understanding. According to the expertise's modifications and the results of the pilot study, some modifications were applied in the form of rephrasing or rewording, and sometimes changing of some questions. Patient's need questionnaire was tested for reliability and showed high reliability $\alpha = 0.96\%$. Reliability of the self-efficacy scale was also tested in the study through measuring its alpha Cronbach coefficient. This was 0.972, indicating high level of reliability.

Field work:

The study was implemented from September 2015 to June 2016 where the researcher was available three days weekly from 9 am to 1 pm.

Assessment phase: The researcher started to recruit the sample according to eligibility criteria. Those who gave their consent were interviewed individually using the data collection form. The information obtained served as baseline data or pretest, and guided the researchers in the preparation of the educational program.

Planning phase: Using the assessment data and related literature, the researcher developed an educational program to train patients and improve their knowledge and practice about MI, and related self-efficacy. The educational program included a theoretical and a practical part. The researchers prepared an illustrated guideline booklet in simple Arabic language to help patients assimilate and refresh the information provided to achieve aim of the study.

Implementation phase: The researcher met with the patients individually, and administered the educational program in sixteen sessions each session 30-45 minutes. The first five sessions were theoretical and covered myocardial infarction definition, causes, risk factors, manifestation, diagnosis, line of treatment, complication associated with the disease and the medication taken and the follow up. This was followed by ten practical sessions with applied practical training in required practices include oxygenation, breathing and coughing exercises, heart rate and rhythms evaluation, presence of jugular vein distention, Measuring intake and output, daily weight measurement, assessment of discomfort degree associated with activity, monitor for restless, pain, fatigue, anxious behavior, promote self care participation, Maintain adequate bowel function, dietary managements and integumentary care.

During the practical sessions, each patient was assessed whether he/she follows the program or not. The first session was for orientation about the program. The researchers used simple language to suit the level of patients, with motivation and reinforcement to enhance learning. A copy of the program was offered for each patient to use it as future reference.

Evaluation phase: Each patient in the study was evaluated three times using the same data collection tools. This was done upon recruitment (pre test), immediately after the end of the educational program (post test), and three months after the end of the program (follow-up).

Pilot study:

A pilot study for data collection was carried out in order to test whether the tools are clear, understandable, feasible, applicable, and time consuming. Ten percent from the total sample size that equal five patients were selected randomly from cardiac units to participate in testing of the tools. Those patients were excluded from the study.

Administrative and ethical considerations:

The necessary approvals were obtained from the Faculty of Nursing and submitted to general director of Zagazig University Hospitals. Then Permission to carry out the study was obtained from the head of chosen setting after explaining the purpose of the study and a verbal consent was obtained from patients for participation in the study. All ethical issues were taken into consideration during all phases of the study. At the initial interview, each potential subject was informed about the nature, purpose, benefits of the study, and informed that his/her participation is voluntary. Confidentiality and anonymity of the subjects were also assured through coding of all data.

Statistical analysis:

All collected data were organized, categorized, tabulated, entered, and

analyzed by using SPSS (Statistical Package for Social Sciences). The statistical significance and associations were assessed using, the arithmetic mean, the standard deviation (SD), Wilcoxon Signed Ranks test (Z test), Pearson chi-square test (X^2) and Pearson Correlation (r) to detect the relation between the variables. Significant if $P \leq 0.05$.

Results:

Results revealed the studied patients were in age group ranging from 40 to 75 years old with mean age 56.28 ± 9.90 years and median of 56 years. 70% of the studied patients were ≥ 50 years old.

Table (1): Shows that 77.5% of the studied patients were males, 57.5 were married, 45.0% of the studied patients were intermediated education and 37.5% were academic or university education.

Table (2): shows that the duration of illness among the studied patients ranged from two months to 30 years with mean duration 4.30 ± 5.50 years and median of 3.00. 75% of the studied patients reported sudden onset of the disease and 67.5% discovered the disease by having signs and symptoms.

In addition to 92.5% of the studied patients had co-morbid diseases; the most common co-morbid condition is hypertension in 47.5%, then diabetes mellitus in 32.5% of the studied patients. Obesity and presence of other chronic illness were reported among 30% of the studied patients for each.

Same table shows that 42.5% of the studied patients had smoking history, and 70% of the studied patients were not practicing any exercise. 40% of the studied patients had family history of cardiac diseases.

Table (3): shows that 62.5% and 60% of the studied patients had

difficulty in breathing followed by chest pain. In addition to 40%, 35% and 27.5% of the studied patients reported palpitations followed by epigastric pain and vomiting. The same table shows, 17.5% of the studied patients reported presence of complications, the most common complication was arrhythmias in 57% of the studied patients.

Table (4): shows that 2.5% of study subjects had satisfactory knowledge level in pre program phase, while 77.5% of them in post program phase and 67.5% of them in follow-up phase had satisfactory knowledge level. There was a highly statistical significant difference between pre/post and pre/follow up program phase ($p < 0.01$).

Table (5): confirmed that there was a highly statistically significant difference between pre/post and pre/follow up program phase as regarding to the total score for studied patients' needs ($p < 0.01$).

Table (6): shows that 5% of studied patients had satisfied practice in pre program phase, while 87.5% of the studied patients had satisfied practice in post program phase meanwhile 80% had satisfied practice in follow-up phase. And there was a highly statistical significant difference between pre/post and pre/follow up program phase as regarding the total scores for studied patients' practice ($p < 0.01$).

Table (7): shows that, 100% of studied subjects had unsatisfied self-efficacy in pre program phase, while 72.5% of the studied patients had satisfied self-efficacy in post program phase and 65% of the studied patients subjects had satisfied self-efficacy in follow-up phase and there was a highly statistically significant difference between pre/post and pre/follow up program phase as regarding to the total score for studied patients' self-efficacy ($p < 0.01$).

Table (8): shows that, there was no correlation between patients' knowledge and self-efficacy in pre program phase, while there was intermediate highly statistical significant correlation between patients' practice and their knowledge in pre program phase and versus, $r = .561$ at $P < 0.01$. As well as patients' practice and their self-efficacy in pre program phase and versus, $r = .388$ at $P < 0.05$.

Also the same table illustrated that, there was intermediate a highly statistically significant correlation between patients' knowledge and practice in post program phase and versus, $r = .745$ at $P < 0.01$, there was intermediate statistically significant correlation between patients' practice and self-efficacy in post program phase and versus, $r = .276$ at $P < 0.05$. Also there was intermediate statistically significant correlation between patients' knowledge and self-efficacy in post program phase and versus, $r = .376$ at $P < 0.05$.

Regarding to follow up program phase, this table showed that, there was intermediate a highly statistically significant correlation between patients' knowledge and practice in follow up program phase and versus, $r = .740$ at $P < 0.01$, there was intermediate statistically significant correlation between patients' practice and self-efficacy in follow up program phase and versus, $r = .449$ at $P < 0.05$. Also there was intermediate statistically significant correlation between patients' knowledge and self-efficacy in follow up program phase and versus, $r = .446$ at $P < 0.05$.

Discussion:

MI is a common presentation of ischemic heart disease/CHD. Heart disease is the leading cause of death for both men and women. CHD is the most common type of heart disease, killing over 370,000 people annually CDC⁽⁹⁾ Self-management support can improve the outcomes for different chronic conditions. An important mechanism in improving health status

for participants in self-management programs is patient self-efficacy Taha, et al⁽⁸⁾.

Regarding socio-demographic characteristics, results of the present study revealed that the age of the studied patients ranged from 40-75 years old with the mean of 56 years. The finding of the present study is supported with (Ahmed,⁽¹¹⁾) in his study on the effect of self-care program on quality of life for patients with MI; found that the mean age of the studied patients were fifty four years old. But on the other hand Abdelhameed⁽¹²⁾ in his study on Impact of a Designed Nursing Intervention protocol on MI Patient's outcome, found that the studied patients ranged in age from 50 – 65 years old. Moreover Farag⁽¹³⁾ in his study on the impact of education level on quality of life among patients after cardiac revascularization found that the studied patients ranged in age from 51 to 60 years old. Finding of the current study indicates that aged patients have a high prevalence of MI. Related to gender, results of the present study showed that more than three quarters of the patients were males.

The present result is consistent with Marzouk⁽¹⁴⁾ in his study on psychological assessment of patients with MI, he found that three fourths of the studied patients were males moreover, Angerud, et al.⁽¹⁵⁾ in his study on the process of care-seeking for MI among patients with diabetes, founds that two thirds of the studied patients were males. The findings of the current study could be related to eating and occupational habits, smoking which mainly prevalent among males, in addition to family burden.

Related to marital status, the present study revealed that more than half of the studied patients were married. In the same line, Ahmed,⁽¹¹⁾ in his study on heart rate recovery after exercise is a predictor of silent

myocardial ischemia found that married patients represent the majority of the studied patients. This indicates that the family burdens and needs could be the cause of heart diseases and occurrence of MI, as nearly all people at this age are married.

Regarding education, the present study revealed that slightly less than half of the studied patients were intermediated education or secondary school representing the higher percentage in relation to other educational levels.

The result of the present study is consistent with Masri & Shahrudin⁽¹⁶⁾ in their study on the adherence towards medication and quality of life post myocardial infarction patients, whom showed that three fourths of the studied patients had secondary education. While the present finding is inconsistent with Ahmed,⁽¹¹⁾ who showed that majority of the studied patients were illiterates. The present finding could explain that MI can occur to all (persons either educated or not).

With regards to medical history of the studied patients, the current study revealed that less than three quarters of the studied patients complained of the disease from less than five years. This finding is consistent with Ahmed,⁽¹¹⁾ who found in his study on MI in patients with a normal cardiac catheterization that most of his studied subjects complained of MI less than 5 years. This explains that MI is more critical than other chronic heart diseases and mortality is higher among these patients. Moreover, the disease progress is not good, and the disease has critical effects on the different body systems.

The present study revealed that more than two thirds of the studied patients discovered the disease by having signs and symptoms while the rest discover it during medical examination. This finding is supported by Valensi⁽¹⁷⁾. Who stated that at least one quarter of all MIs is silent, without chest pain or others symptoms. These

cases can be discovered later on electrocardiograms, using blood enzyme tests, or at autopsy without a prior history of related complaints. This finding could be related to lack of awareness about importance of periodic follow up and general examination at least on annual basis.

The present study revealed that most of the studied patients had co-morbid diseases. This finding is supported by Tantaewy⁽¹⁸⁾ who reported the same result. The most common disease was hypertension that present in less than half of the studied patients followed by diabetes mellitus was present in more than one third of the studied patients, in addition to Obesity and presence of other chronic illness. This result is supported by National Center for Health Statistics⁽¹⁹⁾ which stated that, *high blood pressure* alone or in association with obesity, smoking, high blood cholesterol levels or diabetes increases the risk of MI. In addition, Ananya & Mandal⁽²⁰⁾ stated that Obesity increases strain on the heart, raises blood pressure, (cholesterol level and the risk for MI

The current study revealed that, more than two fifths of the studied patients had smoking history, approximately two thirds among the smoking patients were smoking for more than five years and more than two fifths of the studied patients are passive smokers. This finding agreed with Lorig et al⁽¹⁰⁾, who found that about three fourths of the study subjects were smokers. Also Masri & Shahrudin⁽¹⁶⁾ in his study when to rule out Acute Coronary syndrome: 3 simple recommendations mentioned that the most common co-morbid condition was smoking and diabetes mellitus in more than half of the patients respectively, then hypertension in slightly less than half of the patients. This finding of the result could be due to that smoking cause vasoconstrictions and reduce

myocardial oxygen supply and increase the risk for developing coronary artery diseases including MI and also indicates that smoking may be one of the most probable risk factor for the majority of MI.

Regarding practice of exercise the present study revealed that less than three quarters of the studied patients were not practicing any exercise and this explains that lack of activity increase the risk of MI. This finding is supported by Kim , et al⁽²¹⁾ who stated that Regular exercise reduces the risk of coronary artery disease and MI by controlling blood cholesterol levels, decreasing the risk of obesity or diabetes, and lowering blood pressure. This finding of the study could be related to lack of awareness of the importance of exercise and old culture that cardiac patients not supposed to do any activity.

The current study presents that less than two thirds of the studied patients had family history of cardiac diseases. This result is inconsistent with Abdelhameed⁽¹²⁾ in his study on Life style pattern among patients with CAD , who found only 15% of the studied subjects had positive family history for cardiac diseases. This indicates that the family history one of the biggest factors contributing to occurrence of MI.

Regarding chief complaint, the current study showed that difficulty in breathing was the main chief complaint among two thirds of the studied patients followed by chest pain, palpitations, epigastric pain, vomiting, nausea, fatigue and weakness then sweating. The present result is inconsistent with Ahmed,⁽¹¹⁾ and Van , et al⁽²²⁾ who reported that the most common presentations of MI are the chest pain. This result could be related to misunderstanding of the studied patients for the chest pain and its different locations.

As regards to patient's knowledge, the current study results delineated a higher statistically significant difference between patient's knowledge score between pre/post and pre/follow up program phases, ranked as satisfactory in more than three quarters in post program phase and more than two thirds in follow-up phase. However, the majority of the studied subjects were having an unsatisfactory knowledge level before receiving the designed program. The rationale for knowledge improvement might be related to the provision of educational booklet and/or verbal instructional information. The finding of this result is agreed with Ahmed,⁽¹¹⁾ who reported that there was significant increase in level of patient's knowledge regarding definition, causes, risk factors, clinical picture, and complications of MI after implementation of the self-care program.

Also the authors Pringle & Swan⁽²³⁾ mentioned that, the patient education has become one of the most important roles for nurses working in any health care setting. Patients have the right for health education so that they are able to make intelligent, informed decisions about their health. This finding is supported by Pringle & Swan⁽²⁴⁾ who stated that, the patient should be given sufficient information at all times to be aware and actively engaged in their treatment and rehabilitation plan.

The current study delineated a highly statistically significant difference between pre/post and pre/follow up program phase as regarding to the total score for studied patients' physical, psychological, social, and spiritual needs ($p < 0.01$). This finding is supported by Pringle & Swan⁽²⁴⁾ who stated that self-care behaviors used by the studied patients to control physiological problems associated with the disease and medications received. In the same line Ahmed,⁽¹¹⁾ reported high significant change in patient need

after implementation of the self-care program.

This could be related to patient's interest about gaining physical wellbeing during living with the disease to reduce physical, psychological, social, and spiritual problems associated with the disease.

Also Knowles, Holton & Swanson⁽²⁵⁾ added that, the psychological support beneficial for patients and that the intervention by nurses was as effective as that given by psychologists as problem solving, expressing negative emotions, relaxation, distraction, graded task assignment, activity scheduling and ways to improve communication.

As regards to total score for the studied subjects' practice throughout the study phases, the results of present study revealed that, there was a highly statistically significant difference between pre/post and between pre/follow up program phases regarding to the total score for patients' practice. The result of this study in the same line with Tantaewy⁽¹⁸⁾ who found that lifestyle pattern of patients during daily living task and routine activities, change diet, perform exercise, stop smoking increased significantly after cardiac rehabilitation program and continued in increasing after one month of discharge

The current study showed significant improvement in patients' self-efficacy after implementation of the health education program. None of the studied subjects had satisfied self-efficacy in pre program phase, while less than three quarters of the studied patients had satisfied self-efficacy in post program phase and more than two thirds of the studied patients had satisfied self-efficacy in follow-up phase and there is a highly statistically significant difference between pre/post and pre/follow up program phase as regarding to the total score for studied patients' self-efficacy ($p < 0.01$). This result can be due to lack of knowledge

about self-efficacy before implementation of the program.

The finding of the present study in the same line with Taha , et al ⁽⁸⁾. whom found in their study on Impact of a health educational guidelines on the knowledge, self-management practice and self-efficacy of patients with type-2 diabetes that health educational intervention guidelines led to significant improvements in patients' self-efficacy. Also CDC⁽⁹⁾ found that none of the patients had high self-efficacy at the pretest, compared to more than half at the post test, and two fifths at the follow-up test ($p < .001$).

In general the current study revealed an improvement related to patient self-efficacy after implementation of the education program and continued in follow up phase compared to pre program phase. The improvement was highest regarding the management of breathing difficulty and managing diseases as general. The follow-up phase demonstrated some declines but the levels remained significantly higher compared with the pretest in all areas. These findings of the current study agreed with (Taha , et al ⁽⁸⁾) whom reported in their study very low levels in all its aspects at the pretest. Thus, none of the patients had high self-efficacy regarding recreation and social activities, management of DM, and control of emotions. At the post test, revealed statistically significant improvements in all aspects of self-efficacy.

The findings of this study revealed markedly low levels of self-efficacy at the pretest. This deficiency could be attributed to the low education grades, in addition to the lack of knowledge.

The current study showed that, there was no correlation between patients' knowledge and self-efficacy in pre program phase, while there was intermediate highly statistical significant correlation between patients' practice

and their knowledge in pre program phase and versus. As well as patients' practice and their self-efficacy in pre program phase and versus

Also the present study revealed intermediate a highly statistically significant correlation between patients' knowledge, practice and self-efficacy in post program phase and versus.

Regarding the follow up program phase, the current study delineated intermediate a highly statistically significant correlation between patients' knowledge, practice and self-efficacy in follow up program phase and versus.

The finding of the current study consistent with Taha , et al ⁽⁸⁾. who found significant and positive correlations between patients' self-efficacy score and their educational level and knowledge score.

The finding of the current study concluded that promoting personal motivation and self-efficacy could result in better health outcomes. This emphasize the importance of good patient information about the illness in addition to increased patients' participation, self confidence in making choices and decisions regarding the management of their disease, and of intensifying patients' belief in future change.

Conclusion:

On the light of the current study results, it can be concluded that, Myocardial Infarction occurs more among males, aged more than 50 years old and the most contributing factors were hypertension, diabetes mellitus, obesity and smoking in addition to family history. There was significant improvement of patients' knowledge, practices and self-efficacy in post and follow up program phases compared to pre program phase. Intermediate a highly statistically significant correlation between patients' knowledge, practice and self-efficacy in post and follow up program phases and versus was indicated.

Recommendations:

Based upon findings of the current study, the following recommendations can be deduced.

- Self-efficacy for patients with MI should be considered and evaluated during the plan for treatment of patient with MI by trained nurse.
- Increase patients' participation, self confidence in making choices and decisions regarding the management of their disease, and intensifying patients' belief in future change.
- Availability of psychologist to provide emotional support for patient with MI.
- A simple written guideline (colored posters and booklet) for patients with MI should be available in units that provide care.
- Education for patients with MI and the care giver should be started from the day the disease was diagnosed.
- Establishment of rehabilitation unit to improve self-efficacy for patients with MI.
- Further study is needed to be implemented on large number of patients, in addition to disseminating and implementing the study in governmental hospitals.

Table 1: Frequency and percentage distribution of Socio-demographic characteristics among the studied patients (n=40).

Patient's characteristics	Number	%
Age	12	30
< 50 years	28	70
≥ 50 years		
Range	40-75 years	
Mean± SD:	56.28 ± 9.90	
Median	56.00	
Gender		
Female	9	22.5
Male	31	77.5
Marital status		
Single	3	7.5
Married	23	57.5
Widow	8	20
Divorce	6	15
Education level		
Not educated	7	17.5
Intermediate education	18	45.0
University/academic	15	37.5

Table 2: Frequency and Percentage distribution of Past and family history of the studied patients (n=40).

Patient's characteristics	Number	%
Duration of illness		
<5 years	28	70
≥ 5 years	12	30
Range	0.2 – 30	
Mean± SD	4.30± 5.50	
Median	3.00	
Onset of illness		
Sudden	30	75
Chronic	10	25
Discover of illness		
Having signs and symptoms	27	67.5
During medical examination	13	32.5
Presence of co- morbid diseases		
Yes	37	92.5
No	3	7.5
Types of Co- morbid diseases		
Hypertension	19	47.5
Congestive heart failure	4	10
Rheumatoid and congenital heart disease	4	10
Diabetes	13	32.5
Other chronic illness	12	30
Psychological stress	9	22.5
Obesity	12	30
Smoking history		
Yes	17	42.5
No	23	57.5
Smoking duration (n=17)		
< 5 years	6	35.3
≥5	11	64.7
Passive smoking		
Yes	17	42.5
No	23	57.5
Doing exercise		
Yes	12	30
No	28	70
Family history of cardiac disease		
Yes	16	40
No	24	60
Relationship degree (n=16)		
1 st degree	13	81.2
2 nd degree	3	18.8

Table 3: Frequency and Percentage distribution of present history of the studied patients (n=40).

Patient's characteristics	Number	%
Chief complaint		
Chest pain	24	60
Palpitation	16	40
Breathing difficulty	25	62.5
Nausea	10	25
vomiting	11	27.5
Sweating	8	20
Fatigue and weakness	10	25
Epigastric pain	14	35
Presence of complication	7	17.5
Types of complications		
Congestive heart failure	0	
Arrhythmias	4	0%
Cardiac rupture	0	57.1%
Ventricular fibrillation	1	0%
Myocarditis	1	14.3%
Cardiogenic shock	1	14.3%
Others	0	14.3%
(N=7)		0%
Receiving medication	40	100
Having drug allergy	4	10

Table 4: Patients' knowledge satisfaction scores throughout the study phases (n=40).

Patients' knowledge regarding MI	Pre		Post		Follow up		Pre/Post		Pre/FU	
	No	%	no	%	no	%	Z	P	Z	P
Definition	9	22.5	33	82.5	31	77.5	-4.707	.000**	-4.491	.000**
Clinical Manifestations	1	2.5	23	57.5	22	55	-4.690	.000**	-4.583	.000*
Diagnosis	29	72.5	35	87.5	31	77.5	-2.449	.014*	-.632	.527
line of treatment	15	37.5	32	80	28	70	-4.123	.000**	-3.153	.000**
Pharmacological treatment	16	40	33	82.5	31	77.5	-4.123	.000**	-3.638	.000**
Side effects of the drugs	2	5	25	62.5	22	55	-4.796	.000**	-4.472	.002**
Surgical management	15	37.5	32	80	28	70	-4.123	.000**	-3.153	.000**
Complications	3	7.5	17	42.5	16	40	-3.742	.000**	-3.357	.001**
Activity of daily living	7	17.5	29	72.5	28	70	-4.690	.000**	-4.379	.000**
Diet regiment	2	5	18	45	16	40	-4.000		-3.742	
								.000**		.000**
Exercises	9	22.5	27	67.5	24	60	-4.243	.000**	-3.638	.000**
Follow up schedule	10	25	28	70	23	57.5	-4.025	.000**	-2.982	.003**
Total satisfied knowledge score	1	2.5	31	77.5	27	67.5	-5.477	.000**	-5.099	.000**

(*) Statistically Significant at $p < 0.05$ and (**) Highly Statistically Significant at $p < 0.1$

Table 5: Total scores of patient's needs among the studied patients throughout phases of the study (n = 40).

Patients' needs affected severely	Pre		Post		Follow up		Pre/Post		Pre/FU	
	no	%	No	%	no	%	Z	P	Z	P
Physiological needs	40	100	30	75	31	77.5	-3.162	.002**	-3.000	.003**
Psychological needs	34	85	16	40	19	47.5	-4.243	.000**	-3.873	.000**
Socio-economic needs	31	77.5	19	47.5	18	45	-3.464	.001**	-3.357	.001**
Spiritual needs	14	35	7	17.5	9	22.5	-2.646	.008**	-1.508	.132
Total	24	60	0	0	2	5	-4.899	.000**	-4.690	.000**

(*) Statistically Significant at $p < 0.05$ and (**) Highly Statistically Significant at $p < 0.1$

Table 6: Frequency and distribution of satisfied patients' practice among the studied patients throughout the study phases (n=40).

Patients' practices regarding	Pre		Post		FU		Pre/Post		Pre/FU	
	No	%	no	%	No	%	Z	P	Z	P
Oxygen therapy	7	17.5	24	60.0	24	60.0	-4.123	.000**	-4.123	.000**
Breathing and coughing exercise	0	0	25	62.5	24	60.0	-5.000	.000**	-4.899	.000**
Pulse rate and rhythm	6	15.0	19	47.5	18	45.0	-3.606	.000**	-3.464	.001**
Jugular vein distension	14	35.0	32	80.0	31	77.5	-4.243	.000**	-4.123	.000**
Measure intake and output	26	35.0	26	65.0	26	60.0	-4.583	.000**	-4.583	.000**
Daily weight measurement	20	50.0	33	82.5	32	80.0	-3.606	.000**	-3.464	.001**
Measure discomfort associated with activity	14	35.0	32	80.0	31	77.5	-4.243	.000**	-4.123	.000**
Pain assessment	20	50.0	36	90.0	34	85.0	-4.000	.000**	-3.742	.000**
Fatigue	34	85.0	39	97.5	38	95.0	-2.236	.025*	-2.000	.046*
Anxiety	6	15.0	26	65.0	24	60.0	-4.472	.000**	-4.243	.000**
Maintain bowel elimination	13	32.5	36	90.0	34	85.0	-4.796	.000**	-4.583	.000**
Diet regimen	5	12.5	29	72.5	27	67.5	-4.899	.000**	-4.690	.000**
Skin care	11	27.5	28	70.0	27	67.5	-4.123	.000**	-4.000	.000**
Self care	3	7.5	14	35.0	14	35.0	-3.317	.001**	-3.317	.001**
Total patients' practice	2	5.0	35	87.5	32	80.0	-5.745	.000**	-5.477	.000**

(*) Statistically Significant at $p < 0.05$ and (**) Highly Statistically Significant at $p < 0.1$

Table 7: Frequency and distribution of satisfied self-efficacy of the studied patients throughout the study phases (n=40).

Self-efficacy items	Pre		Post		Follow up		Pre/Post		Pre/FU	
	no	%	no	%	no	%	Z	P	Z	P
Exercise regularly	2	5.0	24	60.0	21	52.5	-4.690	.000**	-4.359	.000**
Getting information about disease	19	47.5	37	92.5	38	95.0	-4.243	.000**	-4.359	.000**
Obtaining support from family, friends and community	10	25.0	14	35.0	12	30.0	-2.000	.046*	-1.000	.317
Communication with physician	7	17.5	27	67.5	26	65.0	-4.796	.000**	-3.578	.000**
Managing disease in general	0	0	34	85.0	29	72.5	-5.831	.000**	-5.385	.000**
Do chore	1	2.5	31	77.5	29	72.5	-5.477	.000**	-5.292	.000**
Recreational and social activities	1	2.5	31	77.5	27	67.5	-5.477	.000**	-5.099	.000**
Manage of symptoms	1	2.5	24	60.0	22	55.0	-4.796	.000**	-4.583	.000**
Manage difficulty in breathing	5	12.5	40	100.0	34	85.0	-5.477	.000**	-5.831	.000**
Control or manage depression	3	7.5	26	65.0	23	57.5	-4.796	.000**	-4.264	.000**
Total	0	0	29	72.5	26	65.0	-5.385	.000**	-4.379	.000**

(*) Statistically Significant at $p < 0.05$ and (**) Highly Statistically Significant at $p < 0.1$

Table 8: Correlation coefficient between knowledge, practice and self-efficacy of study patients throughout the study phases (n=40).

Items	Knowledge		Practice		Need		Self-efficacy	
	r	P	R	P	r	P	r	p
Pre Knowledge	1	0	.561	.000**	.631	.000**	.248	.123
Pre practice	.561	.000**	1	0	.384	.017*	.388	.013*
Pre need	.631	.000**	.384	.017*	1	0	.521	.000**
Pre Self-efficacy	.248	.123	.388	.013*	.521	.000**	1	0
Post Knowledge	1	0	.745	.000**	.721	.000**	.379	.016*
Post practice	.745	.000**	1	0	.449	.003**	.276	.045*
Post need	.721	.000**	.449	.003**	1	0	.597	.000**
Post Self-efficacy	.379	.016*	.276	.045*	.597	.000**	1	0
FU Knowledge	1	0	.740	.000**	.699	.000**	.446	.004**
FU practice	.740	.000**	1	0	.444	.005*	.449	.004**
FU need	.699	.000**	.444	.005*	1	0	.513	.000**
<i>FU Self-efficacy</i>	.446	.004**	.449	.004**	.513	.000**	1	0

*Correlation is (not significant NS at > 0.05 level, significant S at < 0.05 , highly significant HS at < 0.01) *rs: Spearman correlation coefficient

* r: Weak correlation (0.1-0.24) Intermediate correlation (0.25-0.74) Strong correlation (0.75-0.99)

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