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Effect of Educational Guidelines on Self – Efficacy among Myocardial Infarction Patients

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Abstract: **Myocardial infarction is a life threatening disease that influences the physical, psychological and social dimensions of the individual. Aim: Evaluate the effect of educational guidelines on self -efficacy among patients with myocardial infarction Design: A quesi experimental design will be used to conduct this study. Setting: The study will be conducted at Cardiology Ward and out patients in Specialized Medical Hospital in Mansoura University. Sample: The study will be including Patients who are 85patients with MI according formula. Tools of the study: Data will be collected using the following three tools:1- Interview questionnaire sheet consists of two main parts: Part I: Socio-demographic data Sheet, Part II: Knowledge assessment questionnaire, 2- General self-efficacy scale. Result: The present study revealed that there was a statistically significant difference in patients knowledge and self- efficacy at baseline, immediately, post 3 month of educational guidelines implementation were ($p<0.001$). Conclusion: More patients had inadequate knowledge and self efficacy regarding myocardial infarction pre implementing educational guidelines and improved post implementing educational guidelines.**

Keywords: **Educational guidelines Myocardial infarction.**

1. INTRODUCTION

What is already known about the topic?

Educational guidelines is an approach that has established increasing attention in recent years, mainly in the context of higher education. Self learning is essential in assisting patients to meet the challenges presented in today's health care environment.

What this paper adds?

This paper provide insight about improvement in knowledge ,practice and self efficacy score post implementing educational guidelines on patients with MI accepted with the research hypothesis.

Introduction A heart attack and myocardial infarction are commonly used terms, and mean the same thing. It happens when blood stops flowing properly to part of the heart and the heart muscle is injured due to not receiving enough oxygen. Usually this is because one of the coronary arteries that supplies blood to the heart develops a blockage due to an unstable buildup of white blood cells, cholesterol and fat (***Porth, 2011*****).**

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The onset of symptoms in (MI) is usually gradual, over several minutes, and rarely instantaneous. Chest pain is the most common symptom of acute MI and is often described as a sensation of tightness, pressure, or squeezing. Pain radiates most often to the left arm, but may also radiate to the lower jaw, neck, right arm, back, and upper abdomen, where it may mimic heartburn ***(Betriu, 2014).***

2. METHODS

2.1 Research design

A quesi experimental design was implemented.

2.2 Participants

The research met patients at Cardiology Ward and out patients clinic in Specialized Medical Hospital in Mansoura University The study will be including patients with MI. The calculated sample size of the study was 85.

2.3 Data collections instruments

Part (1): Socio-demographic data Sheet:

It will include **Socio demographic data sheet** It will include socio-demographic characteristics of the patients such as age, sex, level of education, occupation, marital status, income, habits as smoking and medical history. **Part (II): Knowledge level questionnaire:** To assess level of knowledge with MI pre, immediately and post 3month later. The satisfaction level of knowledge started from 60% while the un satisfaction level was less than 60%. **General self-efficacy scale** This tool to assess a general sense of perceived self- efficacy with the aim in mind to predict coping with daily hassles as well as adaptation after experiencing all kinds of stressful life events, among patients with myocardial infarction, score with a range from 10 to 40.. Level of self-efficacy was considered high if the score 60% or more and low if it less than 60%.-

METHODS

This study was accomplished thought two main phases:

Phase1: Preparatory phase:

1- Administrative process

- 1-An approval will be obtained from Ethical Research Committee Faculty of Nursing Mansoura University to accomplish this study.

- 2-An official letter will be issued from the Faculty of Nursing to the manager of Specialized Medical Hospital affiliated from Mansoura University to permit for the researcher the initial meeting with patients undergoing permanent pacemaker.

- 3-Participants will be conversant about the point and character of the study and will be assured that their identities and responses to the interview would be confidential, answering is voluntary and participation (or not) will have no affect on their current or future health care.

4-Informed consent will be tacked on or after patients to contribute in the study.

5-Tools will be developed by researcher after reviewing the related literature.

2- Developing of the study tools

All tools were residential by the explore after revision the associated writing

- Validity of the developed tools was tested by jury that involves five experts of Medical Surgical Department will be test validity of the developed tools, the required modification will be carried out and measure

-Reliability test was made by using Cronbach alpha was in test knowledge 0.937 and self –efficacy 0,89 which is very good.

3- Pilot study

- A pilot study was conducted to test feasibility and applicability of the tools used in this study. It was carried out on 10 %(five patients) of total study subjects. The patients who were included in the pilot study were excluded from the sample and no modification was done after conducting pilot study.

Phase II: Operation phase Stage 1:

Initial data collection:

December 2017 until October 2018

Days: one day per week

Method of collection through

-The researcher will meet patients with MI in cardiology ward on Sunday the day.

-The interview constructed in Arabic language to a void misunderstanding.

-The educational guidelines consist of 5 session, first session introduction about guidelines, second and third session explain information about (Anatomy of the heart, definition of myocardial infarction, , anatomy and physiology of the heart ,definition and types of MI ,risk factors ,signs and symptoms, investigation ,treatment ,complication, care for patients with MI., healthy diet, medication). Various teaching media were used, such as videos, hand out, color posters and real material. The booklet was given to patients to attract attention, motivate and help patients for reviewing at home and support teaching and practice at home. The time needed for theory1hr and practice 2hr.

-Statistical design:

The composed information were prepared, scheduled and numerical investigate with the numerical tie together for common science .

3. RESULTS

Table (1): As regard ages, More than one third of the study sample (40%) aged between 40 to 50 years. More than half of the sample (62.4 %) were male. Two third of the sample (77.6%) were married. Half of the sample moderate education, (48.2%). More than half of the sample (60%) was living in rural areas. The majority of sample (97.6 %) living with family, and (62.4 %) of sample the study had jobs that require muscular effort. Most of the study sample (84.7%) had past history of co-existing disease. More than one third of the study sample (49.4%) treatment through health insurance. Three quarters of sample the study (75.3%) had monthly income in adequate for treatment cost, and had high transportation costs of the study sample about (89.4%).

Table(2): Show that, the study sample more than of sample (45.9%) recent smoking, and (12.9%) had Past history of smoking, but (41.2%) no smoking, most of sample(81.2%) no educated about risk of smoking.(co existing disease)Shows that, the study sample of (51..3 %) had past history of hypertension, and (16.5%) had diabetes mellitus, but (10.6%) of them had kidney diseases, liver diseases or other diseases (2.4 %, & 4 %).(Medical history) show that most of study sample (63.5%) had MI since a period of less 5 year, also (22.9%) of the study sample had MI since a period of less one year, and (9%) had MI since a period of 5-10 years.(symptoms of disease) Show that, Most of the study sample (65.9%) had chest pain, also (12.9) had dyspnea, and (16.5%) had chest pain and dyspnea.

Table (3): Show that, There were a statistically significant difference in total knowledge level baseline and post 3month of guidelines where $P<0.0001$.

Table (4):): Show that, there were statistically significant difference in total self-efficacy at baseline and post 3month of implementing educational guidelines where ($p<0.0001$).

Table (5): Reveals that socio demographic characteristics including (age, gender, marital status, living status, education and job respectively) education associated with their self-efficacy level where $P > 0.005$.

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Table (1): Number and percentage distribution for demographic characteristics of the study patients (n=85).

	No	%
Age		
20-30 years	6	7.1
30- 40 years	17	20.0
40- 50 years	34	**40.0**
50- 60 years	28	32.9
Sex		
Male	53	62.4
female	32	37.6
Marital status		
Married	66	**77.6**
single	4	4.7
widow	15	17.6
Education		
Illetrate	16	18.8
Read and write	2	2.4
Moderate education	41	**48.2**
High education	26	30.6
Living		
Rural	51	**60.0**
Urban	34	40.0

Table (1) Cont.: Number and percentage distribution for demographic characteristics of the study patients (N=85).

	No	%
Accommodation		
living with family	83	97.6
living with other	2	2.4
work		
brain effort	32	37.6
muscle effort	53	62.4
Economic factor		
free	6	7.1
health insurance	42	49.4
ministerial decision	21	24.7
own expense	16	18.8
Income		
Insufficient	64	75.3
Sufficient	21	24.7
Highly cost transportation		
No	9	10.6
Yes	76	89.4

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Table (2): Number and percentage distribution health relevant data of studied patients (N=85).

Smoking	**N**	**%**
No smoking	35	41.2
Ex. smoking	11	12.9
Current smoking	39	45.9
Known the risk of smoking		
Yes	16	18.8
No	69	81.2
Co-existing diseases		
No disease	13	15.3
HTN disease	43	55.3
DM disease	14	16.5
Renal disease	9	10.6
Liver disease	2	2.4
Other disease	4	4

Table (3): Comparing total knowledge level (at base line, immediate and post 3month) in the study group N=85 patients.

Parameters	**Base line**		**Immediate**		**Post 3 month**		**Test of significance χ^2**	**P**
	No	%	No	%	No	%		
Satisfactory	19	22.4%	84	98.8%	76	89.4%	141.296	<0.001*
Unsatisfactory	66	77.6%	1	1.2%	9	10.6%		

Table(4): Comparing total self-efficacy at base line and post 3 month of implementing educational guidelines in a study group (No=85).

	Base line		**Post 3 month**		**Test of significanceχ^2**	**P**
Self-efficacy	No	%	No	%		
Satisfactory	50	58.8%	76	89.4%	20.729	<0.001*
Unsatisfactory	35	41.2%	9	10.6%		

Table (5): Relationship between socio demographic characteristics and self-efficacy level (base line) of the study group (N=85).

Parameter	**No**	**%**	**satisfaction**	**Un satisfaction**	**Test of significance**	**P value**
Age					**X_2**	
20-30 years	6	7.1	2(4.0%)	4(11.4%)		
30- 40 years	17	20.0	8(16.0%)	9(25.7%)	5.727	.126
40- 50 years	34	**40.0**	**19(38.0%)**	**15(42.9%)**		
50- 60 years	28	32.9	21(42.0%)	7(20.0%)		
Sex						
Male	53	62.4	33(66.0%)	20(57.1%)	.688	.273
female	32	37.6	17(34.0%)	15(42.9%)		
Marital status						

Married	66	**77.6**	**33(66.0%)**	**33(94.3%)**		
single	4	4.7	2(4.0%)	2(5.7%)	12.750	.002
widow	15	17.6	15(30.0%)	0(0%)		
Education						
Illetrate	16	18.8	15(30.0%)	1(2.9%)		
Read and write	2	2.4	2(4.0%)	0(0%)	20.738	***.000**
Moderate education	41	**48.2**	**26(52.0%)**	**15(42.9%)**		
High education	26	30.6	7(14.0%)	19(54.3%)		
Living						
Rural	51	**60.0**	**31(62.0%)**	**20(57.1%)**	**.202**	**.410**
Urban	34	40.0	19(38.0%)	15(42.9%)		
	N	**%**				
Accommodation						
living with family	83	**97.6**	**48(96.0%)**	**35(100.0%)**	**1.434**	**.343**
living with other	2	2.4	2(4.0%)	0(0%)		
work						
Brain effort	32	37.6	10(20.0%)	22(62.9%)	16.109	*.000
Muscle effort	53	**62.4**	**40(80.0%)**	**13(37.1)**		
Economic factor						
free	6	7.1	3(6.0%)	3(8.6%)		
health insurance	42	**49.4**	**18(36.0%)**	**24(68.6%)**	**11.423**	**.010**
ministerial decision	21	24.7	15(30.0%)	6(17.1%)		
own expense	16	18.8	14(28.0%)	2(5.7%)		
Income						
Insufficient	64	**75.3**	**43(86.0%)**	**21(60.0%)**	**7.482**	**.007**
Sufficient	21	24.7	7(14.0%)	14(40.0%)		
Highly cost transportation						
No	9	10.6	7(14.0%)	2(5.7%)	1.493	.196
Yes	76	**89.4**	**43(86.0%)**	**33(94.3%)**		
Family history						
no	60	**70.6**	**43(86.0%)**	**21(60.0%)**	**7.482**	**.007**
yes	25	29.4	7(14.0%)	14(40.0%)		

4. DISCUSSION

Cardiovascular diseases (CVD) are the most common cause of death in worldwide. Myocardial infarction means the expression of myocardial cell necrosis due to persist ischemia . It is usual an acute manifestation of atherosclerosis related coronary heart disease . It results from either coronary heart disease , which implies interruption of blood flow due to plaques in coronary arteries or other obstructing mechanisms **Atia (2019).** Nursing intervention after MI can be a factor in promoting patients compliance to therapeutic regimen program and reduce re hospitalizations through a community based intervention of a home visit and telephone calls follow up **(Elderiny, 2016).**

An education guideline was designed for patients with MI to help them in adaptation with disease and improving quality of life. Patients with MI have changes in the life, problem in psychosocial adaptation and problems in quality of life parameters and self-learning are essential in assisting patients to meet the challenges presented in today's health care environment **(Yousef, 2014).**

According to **Hirnel**, **Solan, Bednarz and Goodkin (2012)** the patients with MI must update their knowledge, to they deliver the knowledge to the patient and learn them to how deal with MI. Educating patients with their disease and treatment plans is necessary if the nurse wants them to follow through with medication, exercise and other lifestyle changes. However, the best results happens if the nurse educates patients and gives emotional support to help patients to be able to learn and adapt with MI without any complication **.**

Therefore, the present study aims to **first:** Assess patient's knowledge about Myocardial infarction pre & post guidelines.

The study hypothesized that, H_1 - There will be an improvement in knowledge score post implementing educational guidelines regarding patients with myocardial infarction. and H_2- There will be an improvement in self - efficacy score post implementing educational guidelines regarding patients with myocardial infarction.

Myocardial infarction. Discussion of the findings of this study will cover the following the main areas 1- Demographic characteristics of patients under study, 2- Comparison between the level of knowledge and self efficacy of (baseline, immediate and post 3month) after implementing education guidelines 3- Relationship between socio demographic characteristics patients' knowledge and self-efficacy.

1. Demographic characteristics of the studied sample:

As regards age, the present study indicated that, most of the study sample ages were ranged from 40 to 50 years. This may be due to recurrent exposure to life stress and responsibility. This Finding is agreement with that of **Ammar (2015)** Who reported most of the study sample ages 40 to 50 years, who found that, majority of patients their age category was more than 45 years. In addition, **Holle (2010)** mentioned that, risk factors for the development of coronary artery diseases increases with age. In many studies the age was related to the compliance in chronic diseases, although in a few studies, the age not to be a factor causing non- compliance and the adult patients might have higher compliance **Theofilou (2011) and Angerud (2013)**. In addition, **Atia (2019)** mentioned that, the studied patients' ages were ranged from 45-55 years old and more than half of them were males affected with myocardial infarction (MI). That might be because male patients were at greater risk in their work environment and most of them are active smokers This finding disagree by **Sarafino (2009)** who stated that; MI occurs more often in patients between the ages of 45 and55.

In relation to gender, the present results showed that, more than study sample were male this may be due the serious elevated number of smoker, This finding agree with **Anand et al. (2008) and WHO (2009)** reports that men between the ages of 15 and 60 years have much higher risks of heart diseases than women in the same age category in every region of the world this finding is in agreement with that of **Mohamed (2012)** who found that, prevalence of MI in males was 1.5 times that in females.

Concerning marital status, the results revealed that, most of the patients under the study were married this may be due to that, the married people were liable to cardiac diseases more than single because they always facing psychological stress of the social role this result supported with **Youssef (2014)** who stated that marriage increase the patients responsibility about the family and children in addition it increase the stressor.

This finding agreement with **Molazem (2013)** who found that, the majority of study sample were married who conducted a study on 70 patients with MI in coronary care units to evaluate the effect of continuous care model on the lifestyle of patients with MI and found that, the majority of sample were married. According to, **Anderson and Taylor (2014)** marital status might influence patients' compliance with medication positively, help and support from a spouse could be the reason why married patients were more compliant to medication than single.

In relation to education, the present results showed that half of patient with moderated education, this result not agree with **Nasr (2015)** who mention that the noticeable findings of the study was that, more than half of the patients under study were illiterate. This could be due to the low social standard for patients attending Ain shams hospital. This result not agree with **Dawood et al. (2013)** who revealed that about half of study subjects had university education. Moreover,

Gulliksson et al. (2011) stated that one fifth of study subjects had College or university education. The researcher opinion is the education enhances the awareness about diseases and increases the ability of recognition about everything related to treatment plan.

Regarding residence, the current study showed that more of the patients under study were living in rural areas. This may be due to unavailability of specialized hospitals in rural areas. This result is in accordance with **Atia (2019) and Mohamed (2012)** who found that, approximately two thirds of their studied subjects were residing in rural areas.

Concerning duration of the disease, nearly half of the studied sample had MI since one to less than five years. This finding is supported by that of **Atia (2019)** who revealed approximately the same finding where they indicated that, more than half of patients had MI since one to less than five years. This "from the investigator's point of view" could direct the attention toward better use of rehabilitation and nursing care after recovery from MI to decrease the possibility of disease recurrence especially where they recently diagnosed with MI.

As regards having co-existing diseases the present study revealed that more than half of patients were hypertensive. In this regards, **Sadeghzadeh (2012)** found that more than half of patients suffered from hypertension. However, **Mahat, (2018)** contradicted the current study finding where hypertension was found among less than half of studied sample. This result "from the investigator's point of view" could be explained in the light of the fact that hypertension is one of the main risk factors for development of MI.

Several mechanisms can account for increased coronary risk in hypertensive patients. Hypertension accelerates the effects on atheroma, increases shear stress on plaques, exerts adverse functional effects on the coronary circulation, and impairs endothelial function and control of sympathetic tone **Atia (2019)**. As well, hypertension is a strong and independent risk factor for acute myocardial infarction **Javed (2016)** indicated that control of hypertension with strict compliance to medications and adoption of lifestyle modifications reduce the risk of MI significantly.

Concerning economic factors that affect patients, the current study displays that, the majority of the patients under study had inadequate monthly income for treatment costs and the most of them complained from high transportation and medications costs. This could be attributed to their low socioeconomic class, and that, most of them were living in rural area and due to the changes in their work abilities and increase in the daily living finance.

This result not agreement with the study **Atia (2019)** recognized that healthcare cost should not be a big burden if the patient has a relatively high income or health insurance. A number of studies found that patients who had no insurance cover or who had low income were more likely to be non-compliant to treatment. However, even for patients with health insurance, health expenses could still be a problem.

Concerning smoking, it was reported by around half of the studied sample. This finding is consistent with that of **Singh and Mahat (2018)** who reported that nearly two thirds of studied patients were smokers. In this regards, **Singh and Mahat, (2018)** indicated that smoking is considered to be a strong risk factor for MI premature atherosclerosis and sudden cardiac death. Smoking results in early STEMI especially in otherwise healthier patients (**Mahmood, 2012**).

Cigarette smoking increases the risk for AMI by multiple and complex mechanisms; it increases serum LDL-cholesterol and triglyceride concentrations and reduces serum HDL-cholesterol. Furthermore, cigarette smoke promotes free radical damage to LDL, leading to accumulation of oxidized LDL-cholesterol within the arterial wall **(Atia, 2019).**

2-Educational guidelines, knowledge level:

Regarding patients knowledge about definition and causes, diet, activity and follow up with MI, the results of the present study showed that, the current study revealed that the level of knowledge regarding MI pre implementing of the educational guidelines was unsatisfactory in most of patients while post educational guidelines there were improvements with highly statistically significant differences baseline, immediate and post 3 month is caused by the education guidelines This Findings are in agreement with**(Elderiny , 2016).**

In this regard, **Hassan (2007)** reported that patients' knowledge about the definition of MI and its causes was improving post cardiac teaching program. **Ammar (2015) and Robert (2011)** stated that, lack of patients` education had a strong effect on their knowledge. Some patients lack understanding of therapies role in the treatment; others lack knowledge about the disease and consequences of poor compliance; or lack understanding of the value of clinic visits

According, **Awinat (2016)** who demonstrated strong and constant improvement of the knowledge level after the education program for more than half of their study sample to ninety percent and eight nine percent, at pre, post education program and at follow up respectively**,** But this results don't agree with **Elsayed (2013)** he said the results of this study showed that most of patients had unsatisfactory level of knowledge. This might be attributed to the fact that less than half of them were illiterate. So, they cannot read or seek information about pacemaker. Also, this could be due to that all patients stated that, the nurses didn't explaining instructions to be followed and most of them didn't take information about precautions related to cardiac diseases.

3- Level of patients` self-efficacy

Concerning self-efficacy, there was a statistically significant increase in mean score after educational guidelines. **Joekes, Van, Elderen and Schreurs (2007)** reported that other studies have found similar relationships between self-efficacy and quality of life in persons dealing with cardiac illness**.** In the same line, **Sarkar, Ali and Whooley. (2009)** found that poorer cardiac functioning in patients with coronary heart disease was associated with a lower degree of self-efficacy.

According to **Cox (2007)** motivation is a large part of the personal factors and helps with compliance. There are different motivations depending on age and self-efficacy is a good predictor of compliance. **Grave (2011)** reported that, more intrinsic motivation the individual may freely engage in the activity and have a full sense of personal control.

3-Relationship between socio demographic characteristics & patient's knowledge, self-efficacy:

Results of the present study clarified that, there was a significant positive correlation between studied patients` demographic data and their knowledge,, compliance and self-efficacy scores and there is no significant relation between patient practice and socio demographic characteristics. The present study finding show that, the relation between patients' knowledge and their age This could be explained by the fact that an adult are more experienced and knowledgeable regarding importance of education program. This finding agrees with **mohamed (2012)** he said there is a significant relation between patients' knowledge and their age.

This study finding show that, the relation between patients 'compliance, self-efficacy and their patient education. This could be patient more awareness and maintain to prevent MI complication happen. This finding agrees with **Elderiny (2016)** he found significant relation, he said patient high education level and know more information about MI and how improve quality of life with disease and prevent complication.

Educational guidelines constructed by the researcher could be used in outpatients` clinics by nurses and other health care providers to educate MI patients who require more attention to save their lives from another life threatening attack or any other related consequent adverse effects. This study could help patients to modify their behaviors regarding their compliance with therapeutic regimen to prevent MI recurrence and other complications.

So have accepted the research hypothesis (H_1 and H_2), the education guidelines positively improve knowledge and self efficacy score post implementing educational guidelines on patients with myocardial infarction.

5. CONCLUSION

From the consequences of the at hand learning, it can be conducted to facilitate:

- More patients had inadequate knowledge regarding myocardial infarction pre implementing educational guidelines.

-After educational guidelines had statistically significant positive effect on patient's knowledge with myocardial infarction.

-The educational guidelines had a positive effect self – efficacy among studied patients with MI through the enhancement of their knowledge.

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