Lifestyle Changes among Patients with Myocardial Infraction

Aya Sobhy Fahmy Elkashef [(1)], Manal Hussein Nasr [(2)], Basma Mohamed Khalil [(3)]
(1) Demonstrator in Medical Surgical Nursing Faculty of Nursing Ain Shams University
(2) Professor of Medical Surgical Nursing, Faculty of Nursing, Ain Shams University
(3) Assist. Prof. of Medical Surgical Nursing, Faculty of Nursing, Ain Shams University

Abstract

Background: Myocardial infarction (MI), also known as a heart attack, occurs when blood flow decreases or stops to a part of the heart, causing damage to the muscle. **Aim of the study:** To assess life style changes among patients with MI through: assessing demographic data, patients knowledge about the disease, also assessing life style practices among patient with MI. **Study Design:** A descriptive exploratory research design was utilized. **Setting:** The study was conducted in the cardiac care unites at Ain shams university hospital. **Study Subjects:** A purposive sample of 100 patients with MI was included in the study. **Data Collection Tools:** Patients' structured interviewing questionnaire, Patients Level of Knowledge Questionnaire & Lifestyle Practices Questionnaire. **Results:** This study revealed that 53% of the studied patients had correct knowledge about definition of the disease and its causes. Also, 72% of them had unsatisfactory level of knowledge about myocardial infarction. Regarding to total physical lifestyle practices 70% of the studied patients have unhealthy physical lifestyle practices. Regarding to psychological state 62% of the studied patients always felt bad tempered and 65% of them were stressed. Regarding to social status 58% of the studied patients always have lack of motivation to think about the future.**Conclusion** Based on the findings of this study it can be concluded that near three quarters of the studied patients had un-satisfactory level of knowleadge about MI and two thirds of them had un-satisfactory level of total knowledge regarding life style changes after MI. Even though the majority of studied patients were commitment to the treatment. This part had answered the first question. Also, three quarters of studied patients had un-healthy life style practices.. **Recommendations:** Include rehabilitation program must held for patients with MI to meet the needs (therapeutic regiment, follow up, exercise and dietary information after MI) and Coping strategies must be delivered for patients with MI about life style changes.

Keywords: Myocardial Infraction, Lifestyle

Introduction

Myocardial infarction (MI), is commonly known as a heart attack, is defined pathologically as the irreversible death of myocardial cells caused by ischemia. MI is a syndrome that can be recognized by a set of symptoms, chest pain being the hallmark of these symptoms in most cases, supported by biochemical laboratory changes, electrocardiographic (ECG) changes, or findings on imaging modalities able to detect myocardial injury and necrosis *(Chapman, et al., 2020).*

Myocardial infarction occurs because of sustained ischemia, causing irreversible myocardial cell death (necrosis).When a thrombus develops, there is no blood flow to the myocardium distal to the blockage, resulting in necrosis. Contractile function of the heart stops in the necrotic area. The degree of altered function depends on the area of the heart involved and the size of the infarction *(Lewis,et al., 2019).*

The most common type of CVD is MI, which is the outcome of coronary vessels occlusion and ischemia of myocardium . MI is a major cause of mortality among heart patients. One MI happens in the USA every 20 second and every minute one dies due to this disease. It is one of the main reasons for hospitalization of heart patients, which is usually assumed as a threatening situation for the patient and the family *(Marquis-Gravel et al., 2020).*

Treatment should be start within 5 minutes for any unrelieved chest pain. The American Heart Association (AHA) recommends chewing one uncoated adult aspirin at the onset of chest pain. Delays in seeking care can limit treatment options and result in more cardiac damage *(Aronow, 2019).*

A survey in general practice has shown that 90% of patients with previously identified coronary heart disease have at least one and usually two or more lifestyle related cardiovascular risk factors such as smoking, poor diet or a sedentary lifestyle. These risk factors are likely to have contributed to their heart disease and, following a myocardial infarction (MI) *(Vasankari et al., 2021).*

A life style changes is a multidisciplinary approach, combining physical exercises with medical, social worker and nutritional consultations, developed to bring the patient to optimal levels of physical, mental, and social functioning .For patients, the process of adopting a more active and healthier lifestyle through behavioral changes is difficult and complex. They need to implement several lifestyle changes at once and for some time, as well as struggle against uncertainty and the overprotection of their family members *(Adams & Linke 2019).*

Significance of the study:

In Egypt, the number of people with MI continue to rise. Egypt is the most populous country in the Middle East and North Africa and has more than 15% of the cardiovascular deaths in the region, but little is known about the prevalence of traditional risk factors and treatment strategies in acute coronary syndrome patients across Egypt *(Reda et al., 2019).*

Aim of the Study

This study aim to:
- ◈ Assess life style changes among patients with MI through: Assessing patients clinical data and patients knowledge about the disease.
- ◈ Assessing life style practice to patient with MI.

Research questions:

This study will answer the following question

- What are the life style changes among patients with MI?

Research Design:

A descriptive exploratory research design was utilized to carry out the current study.

Setting:

The current study was carried out at cardiac care unites CCU,at Ain Shams University hospital, affiliated to Ain shams university. This unit is in the second floor medicine and the total capacity of the CCU is 20 patients.

Subjects and Methods

The study subjects composed of purposive sample of 100 patients who were included in this study according to sensitive analysis in relation to number of patients exposed to MI within the previous year from the above mentioned setting and agreed to participate in the study .The calculation of sample size done based on power analysis equation. As about 800 patients with MI in the year 2019 admitted to the previous mentioned setting.

Tools for data collection:
1- Patient's Interviewing Questionnaire: it was developed by the researcher in simple Arabic language based on recent and related literatures review to assess the following **:**

First part: **patients demographic data:**
It is concerned with assessing socio demographic data of patients under study as (age, gender, level of education, marital status, work, housing, good ventilation in housing ,number of rooms, residence, number of family members)

Second part: Patients medical data:

This part was developed by the researcher and it was used to collect data about patient medical history .it consisted of present health history include seven MCQ questions(duration of the disease, current symptoms, actions to be taken when these

symptoms occur, current treatment, adherence to treatment and its schedule , side effect of treatment, disease diagnosis and Latest lab tests).past health history include the following three items (presence of chronic disease, its type, any surgery before, entering hospital before). family health history includes the following items(presence of cardiac disease ,its type. *(Alberti and Piovesan, 2014:Khalil et al, 2015:Taha et al, 2015).*

Third part: Patients Level of Knowledge Questionnaire:

It is concerned with assessment of patient knowledge regarding myocardial infraction it was developed by the investigator in an Arabic language based on reviewing of scientific literature and the sheet.it involves 20 questions in the form of multiple choices question (MCQ). It was related to knowledge regarding definition of MI (one question), causes (one question), signs and symptoms (three questions), Complications (tow question), Medical examination (tow question), Life style change after MI (12 questions).

3- Lifestyle Practices Questionnaire:

This tool was adopted from MI Dimensional Assessment Scale it comprises of (35) items to assess health domains physical functioning includes exercise, activity, nutrition, medications and smoking: from 1to(20) questions, psychological functioning include feeling of isolated, lonely, vulnerable, insecure, irritable and so on : from 21to33 questions, social functioning includes self-confidence, Inner feeling and feeling toward others and social performance from 34to53 **(Libby et al., 2008 and Timby & Smith, 2010).**

❖ **Scoring system of MI Dimensional Assessment Scale Questionnaire**:

The total score ranging from (0-to 100),the items equal or more than 85% is healthy life style ,while the items less than 85%is un-healthy life style.

Results

Table (1): illustrates that half of the studied patients(50%) their ages were ≥ 50 years, with mean SD of age is 51.4±13.8 years. Two third of the studied patients(68%) were male and near to three quarters(72%) were married. Moreover, more than half (58%) of

the studied patients were working after illness, slightly more than half (55.2%) of them have jobs that requires mental effort and two third(65.5%) of them were working all the time.

Table (2): shows that slightly more than half (55%) of the studied patients received myocardial infarction treatment for less than one year. Also, half (50%) of the studied patients have palpitations and irregular heartbeats. Moreover, slightly more than half (55%) of them do complete rest symptoms of MI occur, while allmost (94%) of them took Aspirin.

Table (3): Table **3** shows that, half (52%) of the studied patients have correct knowledge about definition and more than half (56%) of them have correct knowledge about the most important causes of myocardial infarction, respectively. While, three fifths (60%) of them have incorrect knowledge about the causes of pain and discomfort after myocardial infarction and the most common complications that occurs in patients with myocardial infarction, respectively. Moreover, more than half (58%) of them have incorrect knowledge about nature of chest pain and near to three quarters (72%) have incorrect knowledge about the most important medical tests that indicate the level of performance of the heart muscle, respectively.

Table (4): displays that, slightly more than half (52% & 55%)of the studied patients have correct knowledge about the benefits of following specific diet for a patient with myocardial infarction and the benefits of reducing salts, respectively. While, more than half (56% & 58%) of them have incorrect knowledge about the importance of exercise for the types of sports allowed for patients with myocardial infarction, respectively. Moreover, three fifths (60%) of them have incorrect knowledge about the complications of passive smoking for patients with myocardial infarction and two third (66%) of them have incorrect knowledge about the actions when drug complications occur, respectively.

Table (5): illustrate that, near to half (48%) of the studied patients sometimes practices light exercise and slightly more than half (55%) of them practices vigours exercise, respectively. Also, slightly more than half

(55%) of them always needed to rest more and felt unable to perform their domestic duties, respectively. Also, half (50% & 52%) of the studied patients always found the weather made their pain worse and felt the cold more, respectively.

Table (6): shows that, three fifths (62%) of the studied patients sometimes felt concerned about their diet and more than half (57%) of them sometimes eat green leafy salad, with or without other vegetables, respectively. Also, slightly more than half (54%) of the studied patients sometimes concerned about their cholesterol level and slightly more than half (55%) of them sometimes eat fruits include fresh, candy or frozen, but don't include juices, respectively.

Table (7): displays that, more than half (58% & 55%)of the studied patients sometimes worried about taking tablets and always worried about side effects from tablets, respectively. Also, more than half (56%) of the studied patients don't smoke.

Table (8): shows that, three fifths (62% & 65%) of the studied patients always felt bad tempered and stressed, respectively. Also, more than half (58%) of the studied patients always worried or felt anxious about the future and three fifths (60%) of them were irritable, respectively. Likewise, more than half (55% & 56%) of the studied patients always felt vulnerable and anxious about dying, respectively.

Table (9): reveals that, more than half (58% & 55%) of the studied patients always have lack of motivation to think about the future and concerned about their health, respectively. Also, three fifths (60% & 62%) of the studied patients do not feel physical security and always have difficulty adjusting to their health now, respectively. Likewise, more than half (56%) of the studied patients sometimes feeling aggressive towards others and three fifths (62%) sometimes rely on others to achieve their goals, respectively.

Part (I): Sociodemographic characteristics of the studied patients.
Table (1): Percentage distribution of the studied patients according to their demographic characteristics(n=100).

Items		Frequency percent	
		No	**%**
Age			
18-<30 yrs.		14	14
30-<50 yrs.		36	36
≥ 50 yrs.		50	50
Mean SD	**51.4±13.8**		
Gender			
Male		68	68
Female		32	32
Marital status			
Single		28	28
Married		72	72
Working status after illness			
Working		58	58
Not Working		42	42
If working, what is the nature of work (n=58)			
Work that requires muscular effort		18	31
Work that requires mental effort		32	55.2
Work that requires muscular and mental effort		8	13.8
What is your working period (n=58)			
All the time		38	65.5
part time		20	34.5

Part (II): Patients' clinical data.

Table (2): Percentage distribution of the studied patients according to their current history.

Items	N	%
Duration of treatment for myocardial infarction		
Less than one year	55	55
From one year old to less than 5 years	28	28
From 5 to less than 10 years	10	10
Ten years and more	7	7
Current symptoms		
Dizziness and lightheadedness	6	6
Nausea and vomiting	20	20
Dyspnea	24	24
Palpitations and irregular heartbeats	50	50
Measures do you take when these symptoms occur		
Call an ambulance immediately or call someone you know who will take you to the hospital	50	50
While waiting for the ambulance, take any medications prescribed by the doctor, such as (aspirin).	20	20
Complete rest and not make any effort.	55	55
Breathe calmly and avoid stress	15	15
The current treatment		
Aspirin.	94	94
Atropine.	12	12
Concor.	86	86
Fastrel	36	36
Epinephrine	15	15
Atenolol	55	55
Plavix	32	32
Lisinopril	25	25
Digoxine	18	18
Nitroglycerin	65	65
Furosemide (Lasix)	92	92

Part (III): Patients' Level of Knowledge regarding myocardial infraction disease

Table (3): Percentage distribution of the studied patients according to their knowledge about myocardial infarction (n=100)

Items	Studied patients (n = 100)			
	Correct		Incorrect	
	No	%	No	%
Definition of the disease and its causes.				
Definition of Myocardial infarction	52	52	48	48
The most important causes of myocardial infarction	56	56	44	44
Symptoms of the disease				
Nature of chest pain	42	42	58	58
The warning signs that indicate a myocardial infarction	45	45	55	55
Cause of pain and discomfort after myocardial infarction	40	40	60	60
Complications of the disease				
The most common complications	38	38	62	62
Medical examinations				
The most important medical tests	28	28	72	72
Reasons for conducting medical tools	45	45	55	55

Table (4): Percentage distribution of the studied patients according to their knowledge about lifestyle changes after myocardial infarction.

Items	Correct		Incorrect	
	N	**%**	**N**	**%**
Nutrition:				
Benefits of following specific diet	52	52	48	48
Benefits of reducing salts	55	55	45	45
Compilations of eating fatty foods	50	50	50	50
Exercise				
Importance of exercise.	44	44	56	56
Types of sports prohibited	46	46	54	54
Types of sports allowed	42	42	58	58
Complications of smoking				
Complications of passive smoking	40	40	60	60
Complications of active smoking	45	45	55	55
Medications				
Benefits of commitment to take medication on time	55	55	45	45
Benefits of organizing the taking of the drug at different times	50	50	50	50
Actions when drug complications occur	34	34	66	66

Part (IV) : Life style Practices among patients after myocardial infraction.

Table (5): Percentage distribution of the studied patients according to their physical status (exercise, activities of daily living)

Items	Studied sample (n =100)					
	Always		**Sometimes**		**Never**	
	N	**%**	**N**	**%**	**N**	**%**
Exercise						
Light exercise	22	22	48	48	30	30
Moderate exercise	18	18	36	36	46	46
Vigours exercise	15	15	55	55	30	30
Activities of daily living						
Thought twice before you undertook physical activity (e.g., housework or going to the shops)	20	20	30	30	50	50
Needed for more rest	55	55	30	30	15	15
Feel reduced social life	40	40	50	50	10	10
Feel un able to perform domestic duties	55	55	30	30	15	15
Cold weather made pain worse	50	50	33	33	17	17
Feel cold more	52	52	30	30	18	8

Table (6): Percentage distribution of the studied patients according to their nutritional status changes.

Items	Studied sample (n =100)					
	Always		**Sometimes**		**Never**	
	N	**%**	**N**	**%**	**N**	**%**
Felt concerned about diet	24	24	62	62	14	14
Felt concerned about cholesterol level	18	18	54	54	28	28
Worried about weight	45	45	45	45	10	10
Eat green leafy salad, with or without other vegetables	16	16	57	57	27	27
Eat fresh fruits, candy or frozen , but don't include juices	18	18	55	55	27	27
Eat high fiber cereals or whole green breads	24	24	50	50	26	26

Table (7) cont.: Percentage distribution of the studied patients according to their medication's commitment and smoking.

Medication's commitment and smoking	Studied sample (n =100)					
	Always		Sometimes		Never	
	N	%	N	%	N	%
Medication's commitment						
Worried about taking tablets	30	30	58	58	12	12
Worried about side effects from your tablets	55	55	32	32	13	13
Experienced side effects (e.g., cold hands or feet / going to the toilet at night) from your medication.	36	36	50	50	14	14
Smoking	Yes			No		
	N		%	N		%
Positive smoking **(n =44)**	44		44	0		0.0
Negative smoking **(n =56)**	56		56	0		0.0

Table (8): Number and percentage distribution of the studied patients according to their psychological state.

Psychological state	Studied sample (n =100)					
	Always		Sometimes		Never	
	N	%	N	%	N	%
Felt frightened having another heart attack?	36	36	52	52	12	12
Felt isolated?	38	38	50	50	12	12
Felt lonely?	35	35	52	52	13	13
Felt anxious about travelling?	42	42	50	50	8	8
Felt vulnerable?	55	55	30	30	15	15
Felt insecure?	40	40	50	50	10	10
Felt your confidence has been affected?	42	42	52	52	6	6
Felt anxious about dying?	56	56	24	24	20	20
Felt anxious about the future?	58	58	30	30	12	12
Felt irritable?	60	60	28	28	12	12
Felt down or depressed?	52	52	30	30	18	18
Felt bad tempered?	62	62	28	28	10	10
Felt stressed?	65	65	35	35	0	0.0

Table (9): Percentage distribution of the studied patients according to their social status changes **(n =100)**

Social state	Always		Sometimes		Never	
	N	%	N	%	N	%
Self Confidence						
Feeling incompetent	53	53	24	24	23	23
Lack of motivation to think about the future	58	58	30	30	12	12
Lack of specific meaning or purpose for life	42	42	50	50	8	8
Concerned about my health	55	55	30	30	15	15
Inner feeling and feeling toward others						
Had few relationships with other	38	38	52	52	10	10
Feeling aggressive towards others	35	35	56	56	9	9
Control the environment around me	30	30	52	52	18	18
Rely on others to achieve my goals	26	26	62	62	12	12
Feeling uneasy and near to die	28	28	56	56	16	16
Feeling distrust of others and doubt them	20	20	50	50	30	30
Social performance						
Have no satisfactory relations with my family	12	12	34	34	54	54
Lack friends and social relationships	15	15	35	35	50	50
Lack the work that gives the sense that useful and increase self-confidence	55	55	30	30	15	15
Not satisfied with my work	60	60	25	25	15	15
Haven't interment activities	29	29	41	41	30	30
Need to practice recreational activities that satisfy me and renew my activities	25	25	50	50	25	25
Do not participate in community activities	56	56	35	35	9	9
Do not care about community affairs or activities that affect others	40	40	20	20	40	40
Do not feel physical security	60	60	25	25	15	15
Have difficulty adjusting to my health now	62	62	28	28	10	10

Discussion

MI occurs from a partial or complete blockage of a coronary artery, which decreases the blood supply to the cells of the heart supplied by the blocked coronary artery. The extent of the cardiac damage varies depending on the location and amount of blockage in the coronary artery. This is a potentially devastating condition. The ability of the heart to contract, relax, and propel blood throughout the body requires healthy cardiac muscle. Results depends on the speed and effectiveness of treatment *(Ignatavicius& Workman, 2019).*

Concerning the **demographic characteristics** Regarding the age of the studied patients, the finding of the current study revealed that, half of the studied patients were aged $\geq$ 50 years with mean age is 51.4±13.8 years. It may be due to this age group considered as a high risk for exposure to myocardial infraction that increase with age where there are many changes that occur within the cardiovascular system as changes in its structure and function. This result is similar with the result of study performed by **Azab and Elsayed (2017),** who performed a study entitled "Acute myocardial infarction risk factors and correlation of its markers with serum lipids" who found that the age of the patients were from 45-65 years. Also the study performed by **Metwaly and Zatton (2020),** who performed a study entitled " Effect of health educational program on self-efficacy and therapeutic compliance among patients with myocardial infarction" and found that the mean±SD age of the acute Myocardial infarction patients in his study were 58.21±11.12years.

Related to gender the result revealed that more than two third of the studied patients were male, This result might be due to sex hormones (Estrogen) play very important role to provide protective mechanism against CAD during premenopausal years in women. This result similar with the results of the study performed by **El-Moselhy, et al (2018),** who performed a study entitled "Coronary artery disease among elderly Egyptian patients: socio-demographic, lifestyle, psychosocial, medical, and biochemical risk factors" and found that around two thirds of the patients in the study were male. Also, the study performed by **Narang et al (2018**), and entitled "Risk factors and demographic profile in acute myocardial infarction" who found that above two thirds of the patients under the study were male.

Regarding to marital status, the finding of the current study revealed that, near three quarters of the studied patients were married. This result might be due to most of the study subjects were within 45-55years,and usually by this age they are becoming married according to Egyptian society culture. This results are similar to that a study performed by **Endalew et al. (2021)** and entitled "Health-Related Quality of Life and Associated Factors among Myocardial Infarction Patients at Cardiac Center" who found that around two thirds of studied patients were married.

Regarding to work status, the finding of the current study revealed that, more than half of the patients under study their working require mental effort. This results may due to half of the studied patients, their age are more than 50 years and can, not bearing muscular efforts. This result were similar with that of a study performed by **Alsaqri, et al. (2020)** "Saudi myocardial infarction patients' learning needs: Implications for cardiac education program" and found that more than half of the patients in jobs need mental efforts.

On the other hand this result was inconsistent with the result of a study performed by **Sharif and Lafi 2021.** and entitled "Common risk factors of myocardial infarction and some socio demographic characteristics" who found that three fifths of the patients under the study were working in jobs need muscular efforts.

Concerning the **Patients' clinical data,** duration of treatment for myocardial infarction the finding of the current study revealed that, slightly more than half of the studied patients received treatment for less than one year This results not supported with the results of the study performed by **Chow et al.(2019)** and entitled **"**Secondary prevention therapies in acute coronary syndrome and relation to outcomes" and found that majority of the studied patients were received treatment for more than two years.

Regarding to current symptoms the finding of the current study revealed that, half of the studied patients had palpitations and irregular heartbeats, This results not supported with the study done by **Ferry et al.(2019)** and entitled "Presenting symptoms in men and women diagnosed with myocardial infarction using sex-specific criteria" who revealed that, Chest pain was the most common presenting symptom of patients with myocardial infraction.

Regarding to action take when these symptoms occur the finding of the current study revealed that, slightly more than half of the studied patients do complete rest and not make any effort. That is related to patient culture and financial level. This results not supported with the study done by **Kamal et al (2019).** and entitled "Assessment of Knowledge and Practices of myocardial Infarction, Patients After Primary Percutaneous Coronary Intervention at Outpatient Clinic in Heart Hospital Assiut University" Who found that near two fifth of the studied patients take analgesics.

Regarding to current treatment, the finding of the current study revealed that, almost of the studied patients took Aspirin. This result might be due to it is very helpful for people with CAD and can reduce the risk for heart attack and ischemic stroke. This results similar with the results of study performed by **Chow et al.(2019)** and entitled **"**Secondary prevention therapies in acute coronary syndrome and relation to outcomes" who revealed that, the majority of the patients were on aspirin.

Regarding to complications of the disease and medical examinations, the finding of the current study revealed that, around to two third of the patients under the study had incorrect knowledge about most common complications and medical tests after MI. These results not supported by the result of study performed by **Khaled et al (2020).** who found that near to half of the patients aware of the most common complications.

Regarding patient knowledge about the disease, regarding patient knowledge about the

disease, the current study revealed that, more than half of the patients under the study had correct knowledge about definition and the most important causes of MI. That is related to communication with the medical team and ask them about everything related to MI. This results not supported with the results of study performed by **Kamal et al (2019).** who performed a study entitled "Assessment of Knowledge and Practices of myocardial Infarction, Patients After Primary Percutaneous Coronary Intervention at Outpatient Clinic in Heart Hospital Assiut University" Who found that one fifths of patients know the definition of AMI correctly While, less than one fifths from the total patients know the main causes of AMI.

Regarding to symptoms of the disease the current study revealed that, three fifths of the patients under the study had incorrect knowledge about the causes of pain and discomfort after MI. This results not supported with the results of study performed by **Shang, et al (2019).** who performed a study entitled "Association between medication adherence and 1-year major cardiovascular adverse events after acute myocardial infarction" who found that near to half of the studied patients were had correct knowledge about the causes of symptoms after MI.

Regarding to complications of the disease the current study revealed that, slightly more than three fifths of the patients under the study had incorrect knowledge about the about the complications. This results supported with the results of study performed by **Ebada Elsayed and M Mohamed (2021).** And entitled "Effect of Multimodal Cardiac Rehabilitation Program on Patients after Acute Myocardial Infarction" who found that slightly more than half of the studied patients were had incorrect knowledge about the about the complications.

Regarding to nutrition the, finding of the current study revealed that, more than half of the patients under the study had correct knowledge about the benefits of specific diet for a patient with myocardial infarction and the benefits of reducing salts .This results similar with the result of study performed by **Kitakata et al.(2018)** and entitled "Patient confidence regarding secondary lifestyle modification and

knowledge of heart attack" who found that more than half of the patients under the study considered that nutritional guidance were useful of them.

Regarding to exercise, the finding of the current study revealed that, more than half of the patients under the study had incorrect knowledge about the importance of exercise, in relation to the types of sports allowed for patients with myocardial infarction. This results may due to the uncommon practice of exercise for the Egyptian population, and most of Egyptian do not know the importance of sports. These results not supported with the result of study performed by **Coull, & Pugh (2021)** "Maintaining physical activity following myocardial infarction" who found that the majority of patients described excellent experiences about importance of exercise.

Regarding to complications of smoking, the finding of the current study revealed that, three fifths of the patients under the study had incorrect knowledge about the complications of passive smoking for patients with myocardial infarction. This results similar with the result of study performed by **Sia et al (2021).** who found that the patients under the study still smoke so much and had incorrect knowledge about the complications of smoking.

Moreover, regarding to medications, the finding of the current study revealed that, two third of the patients under the study had incorrect knowledge about the actions taken when drug complications occur. These results similar with the results of study performed by **Piekarz et al(2022).**"Medication-taking for secondary prevention of acute myocardial infarction" who found that above two third of the patients were had incorrect knowledge about what to do when side effects from medications occur.

Life style practices among patients after myocardial infraction. Regarding to exercise, the finding of the current study revealed that, slightly more than half of the patients under the study sometimes had practices vigours exercise. These result similar with the result of study performed by **Xing et al(2020)** and entitled **"**The beneficial role of exercise training for myocardial infarction treatment in elderly" who found that half of the patients had low and high-intensity exercise.

Regarding to activities of daily living, the finding of the current study revealed that, more than half of the patients under the study always had needed to rest more and felt unable to perform their domestic duties. This result similar with the result of study performed by **Hajduk et al(2020).** Who performed a study entitled "Risk Model for Decline in Activities of Daily Living Among Older Adults Hospitalized With Acute Myocardial Infarction", who found that half of the patients under the study were impaired in all ADLs. Also, disagree with the result of study performed by **Narang et al (2018).** and entitled "Risk factors and demographic profile in acute myocardial infarction" who found that half of the patients under the study had sedentary lifestyle and perform ADLs.

Regarding to nutritional status, the finding of the current study revealed that, three fifths of the patients under the study sometimes felt concerned about their diet, Also, more than half of them sometimes eat green leafy salad, with or without other vegetables. This result similar with the result of study performed by **Kamal et al.(2019)** Who performed a study entitled **"**Assessment of Knowledge and Practices of myocardial Infarction, Patients After Primary Percutaneous Coronary Intervention at Outpatient Clinic" who found that more than half of the patients sometimes Taking foods that contain fiber, fruits and vegetables.

Regarding to medication's commitment, the finding of the current study revealed that, more than half of the patients under the study sometimes worried about taking tablets and always worried about side effects from tablets. This result supported by the results of study performed by **Shang et al (2019).** Who performed a study entitled "Association between medication adherence and 1-year major cardiovascular adverse events after acute myocardial infarction" who found that around half of the patients belief that one's condition had improve and no longer required medications and exposure to its side effects.

Regarding to smoking, the finding of the current study revealed that, more than half of the patients under the study don't smoke, These results not supported with the result of study performed by **Shlomo et al (2022)**. Who performed a study entitled " Active Lifestyle Post First Myocardial Infarction" who found that half of the patients were smoker. In the same field, a study performed by **Ebada Elsayed and M Mohamed (2021).** and entitled "Effect of Multimodal Cardiac Rehabilitation Program on Patients after Acute Myocardial Infarction" who found that more than half of the patients were current smoker.

Regarding to psychological state, the finding of the current study revealed that, two thirds of the patients under the study always felt bad tempered and stressed, and three fifths of them always worried or felt anxious about the future and irritable. Likewise, more than half of the patients under the study always felt vulnerable and anxious about dying.

This results in accordance with **Sreenivasan et al.(2021)** Who performed a study entitled "Mental health disorders among patients with acute myocardial infarction" who found that three quarter of the patients were stress and irritable. In the same field, a study performed by **Fleetwood et al.(2021)** and entitled "Severe mental illness and mortality and coronary revascularization following a myocardial infarction" who found that two third of the patients were had anxiety disorder followed by bipolar disorder.

Regarding to social status, the finding of the current study revealed that, more than half of the patients under the study their self-confidence always have lack of motivation to think about the future and concerned about their health. These results in accordance with **Shajrawi et al(2021)** entitled who found that half of the patients were had lack of motivation about the life and future.

Regarding to Inner feeling and feeling toward others the finding of the current study revealed that, more than half of the patients under the study sometimes feeling aggressive towards others and three fifths of them sometimes rely on others to achieve their goals. This results may due to the psychological, physical and social changes accompanying the disease.This results supported with the result of study performed by **Liu et al (2018)** who performed a study entitled "Correlations among psychological resilience, self-efficacy, and negative emotion in acute myocardial infarction patients" and found that more than half of the patients under the study were feeling aggressive in dealing with others and were had a life problems after the disease.

Moreover, regarding to social performance, the finding of the current study revealed that, Three fifths of the patients under the study always do not feel physical security and always have difficulty adjusting to their health now. This results may due to the new pathological changes that appeared in their lives. This results not supported with the result of study performed by **Shlomo et al (2022)**. who performed a study entitled "Active Lifestyle Post First Myocardial Infarction" and found that the majority of the patients were retained social leisure activities.

Conclusion

Based on the findings of this study it can be concluded that near three quarters of the studied patients had un-satisfactory level of knowledge about MI and two thirds of them had un-satisfactory level of total knowledge regarding life style changes after MI. Even though the majority of studied patients were commitment to the treatment. This part had answered the first question. Also, three quarters of studied patients had un-healthy life style practices.

Recommendation

Based on the findings of the present study, the following recommendations are suggested:

1- Rehabilitation program must held for patients with MI to meet the needs (therapeutic regiment, follow up, exercise and dietary information after MI).

2- Continous follow up of patients involvement in rehabilitations programs by health care providers to early detection for any post MI complications.

3- Coping strategies must be delivered for patients with MI about life style changes.

4- Patients are in need of a simplified and comprehensive Arabic booklet including

information about life style modification for patients after MI.

5- Further studies about the effect of the life style modification regarding patients with MI should be encouraged.

References

Adams, V., and Linke, A. (2019): Impact of Exercise Training on Cardiovascular Disease and Risk. Biochimica et Biophysica Acta (BBA)-Molecular Basis of Disease, 1865(4), 728-734. AHA/ACCF Secondary prevention and risk reduction therapy for patients with coronary.

Alberit, A. and Piovesan, S., (2014): The evolution of the therapeutic strategy in hepatitis Features of sofosbuvir and indications digestive and liver disease journal volume 46,https://www.science direct.com

Alsaqri, S. H., Alkuwaisi, M. J., Shafie, Z. M., Aldalaykeh, M. K., and Alboliteeh, M. (2020): Saudi myocardial infarction patients' learning needs: Implications for cardiac education program. Clinical Epidemiology and Global Health, 8(4), 1208-1212.

Aronow, W. S. (2019): Medical management after myocardial infarction. Future Cardiology, 15(3), 135-138. Association and American College of Cardiology Foundation

Azab, A. E., and Elsayed, A. S. I. (2017): Acute myocardial infarction risk factors and correlation of its markers with serum lipids. J Appl Biotechnol Bioeng, 3(4), 00075.

Blaum, C., Brunner, F. J., Kröger, F., Braetz, J., Lorenz, T., Goßling, A., ... and Waldeyer, C. (2021): Modifiable lifestyle risk factors and C- reactive Protein in Patients with Coronary Artery Disease: Implications for an Inflammatory Treatment Target Population. European journal of preventive cardiology, 28(2), 152-158.

Chapman, R., Adamson, D., Shah, S., Anand, A., Strachan, E., Ferry, V., and Cruikshank, A. (2020): High-Sensitivity Cardiac Troponin and the Universal definition of Myocardial Infarction. Circulation, 141(3), 161–171..

Chow, C. K., Brieger, D., Ryan, M., Kangaharan, N., Hyun, K. K., and Briffa, T. (2019): Secondary prevention therapies in acute coronary syndrome and relation to outcomes: observational study. Heart Asia, 11(1).

Coull, A., and Pugh, G. (2021): Maintaining physical activity following myocardial infarction: a qualitative study. BMC cardiovascular disorders,

Ebada Elsayed, R., and M Mohamed, Y. (2021): Effect of Multimodal Cardiac Rehabilitation Program on Patients after Acute Myocardial Infarction: Nursing Sensitive Outcomes. Egyptian Journal of Nursing and Health Sciences, 2(2), 54-80.

El-Moselhy, E. A., Mohammed, A. S., El-Aziz, A. A., Sadek, I., Hagrass, S. A., and Farag, G. A. S. (2018): Coronary artery disease among elderly Egyptian patients: I. socio-demographic, lifestyle, psychosocial, medical, and biochemical risk factors. Am J Gerentol Geriatr, 1(2), 1006. emotion in acute myocardial infarction patients after percutaneous coronary intervention. Frontiers in psychiatry, 9, 1.

Endalew, H. L., Liyew, B., Baye, Z., and Ewunetu Tarekegn, G. (2021): "Health-Related Quality of Life and Associated Factors among Myocardial Infarction Patients at Cardiac Center" 18(13), 6937.

Ferry, A. V., Anand, A., Strachan, F. E., Mooney, L., Stewart, S. D., Marshall, L., and Mills, N. L. (2019): Presenting symptoms in men and women diagnosed with myocardial infarction using sex-specific criteria. Journal of the American Heart Association, 8(17), e012307.

Hajduk, A. M., Dodson, J. A., Murphy, T. E., Tsang, S., Geda, M., Ouellet, G. M., ... & Chaudhry, S. I. (2020). Risk Model for Decline in Activities of Daily Living Among Older Adults Hospitalized With Acute Myocardial Infarction: The SILVER-AMI Study. Journal of the American Heart Association, 9(19), e015555. 21(1), 1-9.

Ignatavicius, D. D., and Workman, M. L. (2019): Medical-surgical nursing-e-book: Patient-Centered Collaborative Care. Elsevier Health Sciences,
.   10(1), 1-11.

Kamal, S. O., Fahmy, H. D., Ali, H. H., Sharkawy, S. A., and Mahmoud, S. R. (2019): Assessment of Knowledge and Practices of myocardial Infarction, Patients After Primary Percutaneous Coronary Intervention at Outpatient Clinic in Heart Hospital Assiut University. Assiut Scientific Nursing Journal,7(17), 40-50.

Khaled, S., Ahmed, W. E., Shalaby, G., Alqasimi, H., Ruzaizah, R. A., Haddad, M., ... & Jaha, N. (2020): Disparities of demographics, clinical characteristics, and hospital outcomes of AMI pilgrims vs non-pilgrims—tertiary center experience. *The Egyptian Heart Journal*, *72*(1), 1-8.

Kitakata, H., Kohno, T., Kohsaka, S., Fujino, J., Nakano, N., Fukuoka, R., and Fukuda, K. (2018): Patient confidence regarding secondary lifestyle modification and knowledge of 'heart attack'symptoms following percutaneous revascularisation in Japan: a cross-sectional study. BMJ open.

Lewis, S. L., Bucher, L., Heitkemper, M. M., Harding, M. M., Kwong, J., and Roberts, D. (2019): Medical-Surgical Nursing-E-Book: Assessment and Management of Clinical Problems, Single Volume. Elsevier Health Sciences, 46(6), 1111-1113**.**

Liu, N., Liu, S., Yu, N., Peng, Y., Wen, Y., Tang, J., and Kong, L. (2018). Correlations among psychological resilience, self-efficacy, and negative

Marquis-Gravel, G., Moliterno, D. J., Francis, D. P., Jüni, P., Rosenberg, Y. D., Claessen, B. E., and Goodman, S. G. (2020): Improving the Design of Future PCI Trials for Stable Coronary Artery Disease: JACC state-of- the-art review. Journal of the American College of Cardiology, 76(4), 435-450.

Metwaly, E. A., & Zatton, H. K. (2020). Effect of health educational program on self efficacy and therapeutic compliance among patients with myocardial infarction. *Egyptian Journal of Health Care*, *11*(2), 214-228.   8(3), e019119.

Narang, U., Gupta, A., Gupta, S., Gupta, N., Joshi, S., & Sharma, S. (2018).:Risk factors and demographic profile in acute myocardial infarction: a prospective study from tertiary care rural hospital in North India. *Journal of Contemporary Medical Research*, *5*(6), F14-F21.

Piekarz, H., Langran, C., Raza, A., and Donyai, P. (2022): Medication-taking for secondary prevention of acute myocardial infarction: a thematic meta- synthesis of patient experiences. Open heart, 9(1), e001939.

Shajrawi, A., Granat, M., Jones, I., and Astin, F. (2021): Physical activity and cardiac self-efficacy levels during early recovery after acute myocardial infarction: A Jordanian study. The Journal of Nursing Research, 29(1), e131.

Shang, P., Liu, G. G., Zheng, X., Ho, P. M., Hu, S., Li, J., and Krumholz, H. M. (2019): Association between medication adherence and 1-year major cardiovascular adverse events after acute myocardial infarction in China. Journal of the American Heart Association, 8(9), e011793.

Sharif, B. O., and Lafi, S. Y. (2021): Common Risk Factors of Myocardial Infarction and Some Socio Demographic Characteristics in Sulaimani City. science, 2021, 13.

Shlomo, R. W., Kizony, R., Nahir, M., Grosman-Rimon, L., and Kodesh, E. (2022): Active Lifestyle Post First Myocardial Infarction: A Comparison between Participants and Non-Participants of a Structured Cardiac Rehabilitation Program. International Journal of Environmental Research and Public Health, 19(6), 3617.

Sia, C. H., Ko, J., Zheng, H., Ho, A. F. W., Foo, D., Foo, L. L., and Hausenloy, D. J. (2021): Association between smoking status and outcomes in myocardial infarction patients undergoing percutaneous coronary intervention. Scientific reports, 11(1), 1-9.

Smith, S., Benjamin, E.J., Bonow, R.O., Braun, L.T., Creager, M.A., Franklin, B.A., & Taubert, K.A. (2011). AHA/ACCF Secondary prevention and risk reduction therapy for patients with coronary and other atherosclerotic vascular disease. A Guideline from the American Heart Association and American College of Cardiology Foundation

Sreenivasan, J., Khan, M. S., Khan, S. U., Hooda, U., Aronow, W. S., Panza, J. A., and Michos, E. D. (2021): Mental health disorders among patients with acute myocardial infarction in the United States. American journal of preventive cardiology, 5, 100133.

Vasankari, V., Halonen, J., Vasankari, T., Anttila, V., Airaksinen, J., Sievänen, H., and Hartikainen, J. (2021): Physical Activity and Sedentary Behaviour in Secondary Prevention of Coronary Artery Disease: A review. American Journal of Preventive Cardiology, 5, 100146.

Xing, Y., Yang, S. D., Wang, M. M., Feng, Y. S., Dong, F., and Zhang, F. (2020): The beneficial role of exercise training for myocardial infarction treatment in elderly. Frontiers in Physiology, 11, 270.