Biopsychosocial Needs for Patients with Myocardial Infarction

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Abstract

Background: Myocardial infarction is a serious condition; timely treatment is important and slight delay results in severe consequences. Following acute myocardial infarction, many patients are left traumatized physically and emotionally. Assessing needs for myocardial infarction patients is very important to clarify patients' needs, meeting biopsychosocial and learning needs. **Aim:** This study aimed to assess the biopsychosocial and learning needs for patients with myocardial infarction. **Study design:** Exploratory descriptive design was used to conduct this study. **Setting:** This study was conducted in Coronary Care Unit at Fayoum University hospital. **Subjects:** Purposive sample included 120 patients in Coronary Care Unit. **Tools of data collection: I.** patient's assessment sheet: It included the following parts: Part (1): Patients' demographic data. Part (2): patients' medical history. **II**. Biopsychosocial needs, learning needs assessment tools: It included four categories (physical, psychological, social and learning needs). **Results:** Regarding physical needs; the present study revealed that 49.2% of patients under study had extreme/ sever physical complaints, 55.0% of them were partially dependent. Regarding psychological needs 26.7% of them had moderate depression. 20.0% of them had moderate anxiety. 20.8% of them had moderate stress. 67.5% of them were somewhat of the time had social needs. 62.5% of them had moderate learning needs. **Conclusion:** This study has indicated that about half of studied patients had extreme/ sever physical complaints, more than half of them were partially dependent, regarding psychological needs, around one quarter of the studied patients had moderate depression, anxiety and stress. While more than two thirds of them were somewhat of the time had social needs and two thirds of them had learning needs. **Recommendations:** Simple booklet written in Arabic language suggested to developed and be available for all patients with myocardial infarction. Continuous assessment of biopsychosocial and learning needs for myocardial infarction patient after discharge.

Key words: Biopsychosocial needs, Myocardial infarction.

Introduction:-

Acute myocardial infarction (AMI) is a fatal urgent condition, in which there is sudden decreased blood flow in coronary arteries causing abnormality in myocardial perfusion activity. AMI is a part of the spectrum called acute coronary syndrome (ACS), which includes unstable angina, non-ST-segment elevation myocardial infarction and ST-segment elevation myocardial infarction. AMI constitutes a big challenge facing health authority worldwide *(Cediel, et al., 2019 and Virani, et al., 2020).* Despite a great advance in the diagnosis and treatment of AMI in the last few decades, it still one of the major killers with great impact on social and economic status of different communities *(Alabas, et al., 2020).*

In acute myocardial infarction, unlike other cardiovascular diseases (CVD), timely pre-hospital and emergency treatment ensures successful recovery of the patient and a better prognosis. Ignoring these principles can leads to increasing mortality rates, even among young people *(Knoery, et al., 2020).*

Additanally, after conducting of reperfusion therapy, it is important to identify patients at high risk for further cardiac events, such as re-infarction or death and make intervention to prevent such complications *(Pil-Sang & Myung, 2019).* As the risk of adverse events decreases over time, an early assessment of the risks is necessary. The assessment of the size of the infarct area and function of the left ventricle at rest, as a rule, by the method of echocardiography (ECG), should be done before discharge of the patient from the hospital *(Saleh, et al., 2019 & Zhdan, etal., 2019).*

Myocardial infarction (MI) influences the individual's biopsychosocial wellbeing and imposes limitations on patients everyday functioning and life in general. After an AMI, there is a higher risk for recurrent cardiac events. When patients return home, experience some or all of the following feelings, including existential dread, guilt, denial and loss of their former way of life. Patients with MI have been informed about the need for life-long medication and lifestyle changes. Therefore, coping strategies are used to modify physiological and psychological stress reactions. In addition, coping abilities are required to manage subsequent events *(Son, et al., 2016).*

The challenge of adequately assessing and meeting patients' learning needs is very important. Providing information for MI patients is an important nursing function and is part of the role of health-care professionals delivering cardiac education. It is essential to acknowledge and incorporate the self-perceived needs of patients into the information they receive. Hospital stays are becoming shorter, reducing the opportunities for nurses to provide pre-discharge information to patients *(Alsaqri, et al., 2020).*

Nurses play an important role in educating the patient and family. The patient and family will need education about the MI. Education should begin as soon as the patient comes in contact with the healthcare system. Initial information should be simple and concise and focus on what to expect. It may also be necessary to educate the patient and family about thrombolytic agents and percutaneous coronary intervention (PCI) so that informed decisions can be made. Nurses need to remember to use familiar terms when describing medications and procedures. Most important, nurses should offer emotional support and attempt to relieve anxiety *(Urden, et al., 2018).*

Significance of the study:-

Worldwide each year more than seven million people experience MI, in which one year mortality rate are today in range 10% but differ with patient feature. The significant of the study are even more spectacular among patients who live, 20% hurt of a second cardiovascular incident in first year around 50% of major coronary event in those with a prior hospital discharge diagnosis of ischemic heart disease (IHD) *(Chindhy, et al., 2020).*

Concerning to the most recent World Health Organization rankings data published the coronary heart disease deaths in Egypt reached 271.69 per 100, 000 of population ranks which about 29.38% of total deaths rate as well as Egypt is considered number 15 in the world rank *(World Health Organization, 2021).* Patient with IHD can develop unstable health conditions, so, this study was conducted to determine the biopsychosocial needs for those patients.

Aims of the study

This study aimed to assess the biopsychosocial and learning needs for patients with myocardial infarction through:

- Assess physical needs for patients with myocardial infarction.

- Assess psychological needs for patients with myocardial infarction.

- Assess social needs for patients with myocardial infarction.

- Assess the learning needs for patients with myocardial infarction.

Research questions:

This study answers the following questions:

- What are the physical needs for patients with myocardial infarction?

- What are the psychological needs for patients with myocardial infarction?

- What are the social needs for patients with myocardial infarction?

- What are the learning needs for patients with myocardial infarction?

Subjects and methods:

1) The technical design:

Technical design included research design, setting, subject and tools for data collection.

A) Research design:

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

B) Setting:

This study was conducted in Coronary Care Unit at Fayoum University hospital. Which related to Fayoum University, Fayoum governmental, Egypt. It consists of two separate rooms in coronary care unit for both males and females on the third floor, it contains 18 beds and the ratio of nurses to patients is 1: 2.

C) Subjects:

Apurposive sample included 120 patients in the previously mentioned setting who met the inclusion criteria were recruited in the study. using the following equation:

$$n = \frac{N \times p(1-p)}{\left[\left[N-1 \times \left(d^2 \div z^2\right)\right] + p(1-p)\right]}$$

Nxp(1-p)	=(895*(0.142*(1-0.142)))/
N-1	=(895-1)*
d^2/z^2	=0.0025 / 3.8416+
p(1-p)	=0.142*(1-0.142)
n	=120

N= Community size

z= Class standard corresponding to the level of significance equal to 0.95

and 1.96

d= The error rate is equal to 0.05

p= Ratio provides a neutral property = 0.120

(Chow, et al., 2007)

Inclusion criteria:

-Adult patients of both gender, different ages.

-Free from comorbid conditions.

-Free from psychiatric disorders.

D) Tools for data collection:

I. Patient's assessment sheet:

It was designed by the investigator to assess needs of patients with MI. It included the following parts:

Part (1): It was concerned with Patients' demographic data which included 6 closed ended questions such as (age, gender, marital status, level of education, occupation and residency).

Part (2): It was concerned with patients' medical history which included 6 closed ended questions such as history of chronic illness, surgery, hospitalization, cardiac disorders, drugs and special habits.

II. Biopsychosocial needs and learning needs assessment tools, it included the fowllowing five parts:

1-The Somatic Health Complaints Scale:

This tool was adapted from*(Denollet, 1994)* and modified by the investigator*.* It was concerned with collection of data regarding assessment of physical needs for MI patient. It included 12 items somatic health complaints. 1- Tightness of the chest. 2- Stabbing pain in heart or chest. 3- Shortness of breath. 4- Pain in heart or chest. 5- Inability to take a deep breath. 6- Fatigue. 7- Feeling weak. 8-Feeling exhausted without any reason. 9-Feeling that you are not rested. 10-Feeling you can't sleep. 11- Trouble falling asleep. 12- Sleep that is restless or disturbed. This tool was translated into simple Arabic language, and back translation was done.

Scoring system:

The total score of the somatic health complaints scale was 48. The tool included 12 items, every item had 5 responses (0) not at all, (1) mildly a bit, (2) moderately, (3) quite a bit and (4) extremely.

The total degrees for every patient were summed up then categorized as follow (based on the statistical report):

From 0 to11 considered no complaints

From 12 to 23 considered mild complaints

From 24 to 35 considered moderate complaints

From 36 to 48 considered extreme/ sever complaints.

The present of somatic health complaints with the greater the score this means that patient had physical needs.

2-The Barthel Index of Activities of Daily Living Scale:

This tool was adapted from *(Kancir & Korsgaard, 2010)* and modified by the investigator*.* This scale was used to assess functional status as a measurement of the patient's ability to perform activities of daily living independently. It was included 10 items such as bowels, bladder, grooming, toilet use, feeding, transfer, mobility, dressing, stairs and bathing. This tool was translated into simple Arabic language and back translation was done.

Scoring system:

The total score of the barthel index of activities of daily living scale was 20. The total degrees for every patient was summed up then categorized as follow (based on the statistical report):

From 0 to3 considered totally dependent.

From 4 to7 considered highly dependent.

From 8 to 15 considered partially dependent.

From16 to 20 considered totally independent.

The present of independency level with the greater the score this means that patient had physical needs.

3-Depression, Anxiety and Stress Scale (DASS):

This tool was adapted from *(Lovibond & Lovibond, 1995)* and modified by the investigator. This scale used to assess depression, anxiety and stress among studied patients; it was concerned with collection of data regarding assessment of psychological needs for MI patient. It included 42 items, it included 14 items that was used to assess depression, 14 items was used to assess anxiety and 14 items was used to assess stress. This tool was translated into simple Arabic language, and back translation was done.

Scoring system:

The total score of DASS was 126. The tool included 42 items, and the total score for each subscale 42. Every item has 4 responses (0) did not apply to me at all (1) applied to me to some degree (2) applied to me to a considerable degree (3) applied to me very much. Each positive item is scored from (0) to (3) while negative is scored from (3) to (0), the total degrees for every patient was summed up then categorized as follow:

Depression

0 to 9 considered normal psychological status

10 to 13 considered mild depression

14 to 20 considered moderate depression

21 to 27 considered severe depression

28+ considered extremely severe depression

Anxiety

0 to 7 considered normal psychological status

8 to 9 considered mild anxiety

10 to 14 considered moderate anxiety

15 to 19 considered severe anxiety

20+ considered extremely severe anxiety

Stress

0 to 14 considered normal psychological status

15 to 18 considered mild stress

19 to 25 considered moderate stress

26 to 33 considered severe stress

34+ considered extremely severe stress

The present of depression, anxiety and stress with the greater the score this means that patient had psychological needs.

4- Social support survey:

This tool was adapted from *(Sherbourne & Stewart, 1991)* and modified by the investigator. This social support survey was used to assess needs for social support among patients with MI. Such as someone to give you good advice about a crisis, someone who shows you love and affection, someone to confide in or talk to about yourself or your problems and someone to prepare your meals if you were unable to do it yourself. This social support survey was included 20 items which was used to assess the needs for social support among MI patients. This tool translated into simple Arabic language and back translation was done.

Scoring system:

The total score of social support survey was 100. The tool included 20 items; every item had 5 responses (1) none of the time, (2) a little of the time, (3) some of the time, (4) most of the time and (5) all of the time.

The total degrees for every patient was summed up then categorized as follow (based on the statistical report):

70-100 considered all of the time need for social support.

40-70 considered somewhat of the time need social support.

Less than 40 considered no need social support.

The present of social support survey with the greater the score this means that patient had social needs.

5-Patient Learning Needs Scale:

This tool was adapted from *(Redman, 2003)* and modified by the investigator. This tool was included 40 items such as learning needs about medication, diet, disease, exercise and follow up. This tool was translated into simple Arabic language and back translation was done.

Scoring system:

The total score of patient learning needs scale was 200**.** The tool included 40 items**;** every item had 5 responses (1) not important (2) slightly important (3) moderately important (4) very important (5) extremely important.

The total degrees for every patient were summed up then categorized as follow:

40-100 considered low learning need.

101- 150 considered moderate learning need.

151-200 considered high learning need.

The present of patient learning needs scale with the greater the score this means that patient had learning needs.

II. Operational design:

The operational design for this study was consisted of 3 phases, namely preparatory phase, content validity and reliability, pilot study and field work.

1. Preparatory phase:

This phase was included reviewing of the relevant related literature, and theoretical knowledge of various aspects of the study using books, articles, internet periodicals and magazines this served to develop the study, for data collection. Development of the tools was under supervisors' guidance and experts' opinions.

2.Content validity and reliability:
Testing validity:

An opinionnaire was developed by the investigator to assess face and content validity of the tools through group of seven experts from the medical surgical nursing in faculty of nursing, Ain shams University. The experts were asked to respond to each statement of the tools to assess its validity.

Two types of validity test used in this stage face and content validity. Face validity aimed at inspecting the tools to determine whether the tool measures what it supposed to measure. Content validity was conducted to measure appropriateness, relevance, correction and clearance of the content of tool used. Jury was from different academic categories (1 professor, 1 assistant professor and 5 lecturers).

Reliability:

It was tested statistically to assure that the internal consistency of the tools using alpha cronbach's test.

The result was r = (0.931) for health complaints scale, (0.908) for barthal index, (0.796) for social support, (0.837) for patient learning needs scale, (0.881) for depression scale, (0.910) for anxiety scale and (0.852) for stress scale.

3. Pilot study:

A pilot study was carried out on 10% (12) patients under study to evaluate the applicability, clarity, efficiency of the tools and to estimate the time needed to answer it and to test feasibility of the research process. No modifications done to the tools, so, the patients included in the pilot study were included in the main study sample.

Ethical consideration:

The research approval from ethical committee at faculty of nursing, Ain Shams University before starting the study. Approval for data collection from the patients was obtained and the investigator clarified the aims and expected outcomes to the patients under study. Patients secure that all the gathered information confidential and used for the research purpose only. The patients informed that they are allowed to choose to participate or not in the study and they have the right to withdraw from the study at any time.

4. Field work:

-The actual field work of this study was carried out over 6 months period was started from February / 2021 and completed at end of August / 2021; data collection was done three days a week (Tuesday, Wednesday and Thursday) by the investigator in the morning and afternoon shifts, in previously mentioned setting.

-The investigator introduced herself and simply explained the purpose of the study to patient under study prior to any data collection to obtain participation consent (oral consent).

-The investigator met 2-5 patients in every visit, data collected after ensuring that patients under study met criteria for selection.

The time needed for completing the questionnaire sheet was about 50-60 minutes.

-All tools of data collection which used to conduct this were filled in by the investigator.

-Demographic data filled out by investigator within 10 min.

- Assessment of somatic health complaints scale and the barthel index of activities of daily living scale used to assess physical needs for patients with MI. The investigator interviewed each patient individually to fill the questionnaire within 20 min.

- Assessment of depression, anxiety and stress scale to assess psychological needs for patients with MI. The investigator interviewed each patient individually to fill the questionnaire within 10 min.

- Used social support survey to assess social needs for patients with MI. The investigator interviewed each patient individually to fill the questionnaire within 10 min.

- Used patient learning needs scale to assess learning needs for patients with MI. The investigator interviewed each patient individually to fill the questionnaire within 10 min.

(III) Administrative design:

Approval was obtained through on issued letter from the dean of Faculty of Nursing, Ain Shams University to directors in Coronary Care Unit at Fayoum University hospital. The investigator then met the hospital director and explained the purpose and the methods of the data collection.

Statistical design:

The data obtained tabulated and statistically analyzed and presented in numbers and percentage in tables, figures and diagrams as required and suitable statistical tests was used to test the significance of results obtained by: Mean value (X) the sum of all observations divided by the number of observations standard deviation (SD) degree of scatter of individual varieties around their mean. Chi-square test: for comparison between groups as regards qualitative data. The threshold of significance was fixed at 5% level (P value). Significance was detected according to P-Value as follow: P>0.05= non significance, P<0.05= significance and P<0.001= highly significance. Spearman's rank correlation coefficient (r) was used to assess the degree of association between two sets of variables if one or both of them as skewed.

Results:-

Table (1): Reveals that 36.7% of patient under study had age range 51-60 years old with Mean ±SD 57.45±10.65, 75.8% of them were males, 99.2% of them were married, 37.5% of them were not read or writes, 62.5% of them live in urban. Lastly, regarding work 78.3% of them their work requires muscular effort.

Table (2): This table reveals that 70.0% of patients under study had hypertension, 27.5% had arteriosclerosis, 57.5% had diabetes, 14.2% had chronic liver disease, 54.2% of them had admitted to hospital previously, 52.5% of them had not history of previous surgeries and 51.7% had a previous history of heart problem. While regarding the medications 68.3% of them were taking antihypertensive drugs, 55.0% of them were taking drugs to control diabetes and 30.8% of them taking heart disease medication, regarding the smoking 52.5% of patients under study were smokers, in relation to the smoking index 66.7% of them were smoking since more than 20 years. Lastly regarding exercise 95.8% of them did not practice exercise.

Figure (1): Reveals that 49.2% of patients under study had extreme/ sever complaints regarding physical needs, while 40.0% of them had moderate complaints regarding physical needs.

Figure (2): Reveals that 55.0% of patients under study were partially dependent, while 39.2% of them were totally independent regarding physical needs..

Table (3): Regarding psychological needs, this table shows that 18.3% of patients under study had extremely severe depression, while 26.7% of them had moderate depression, 29.2% of them had extremely severe anxiety, while 20.0% of them had moderate anxiety and 10.0% of them had extremely severe stress, while 20.8% of them had moderate stress.

Figure (3): Reveals that 67.5% of patients under study were somewhat of the time had social needs, while 20.0% of them were all of the time had social needs.

Figure (4): Shows that 62.5% of them had moderate need, while 22.5% of patients under study had high learning needs regarding total learning needs.

Table (4): This table shows that there were negative statistically significant correlation between barthal index and somatic health complaints, social support and stress when r was -0.209, -0.285 and -0.298 with p-value <0.05*, negative statistically significant correlation was found between patient learning needs and somatic health complaints, social support and stress when r was -0.182, -0.395 and -0.194 with p-value <0.05*, positive statistically significant correlation between social support with depression, anxiety and stress when r was 0.215, 0.242 and 0.207 with p-value <0.05*, positive statistically significant correlation was found between depression with anxiety and stress when r was 0.875 and 0.642 with p-value <0.05*, positive statistically significant correlation was found between anxiety and stress when r was 0.647 with p-value <0.05*.
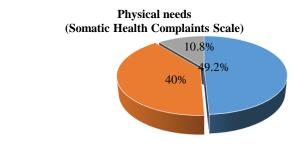
Table (1): Number and percentage distribution of demographic characteristics of patients under study (n= 120)

Items	N	%
Age (years)		
18-40	10	8.3
41-50	21	17.5
51-60	44	**36.7**
61-70	29	24.2
>70	16	13.3
Mean±SD	57.45±10.65	
Gender		
Male	91	**75.8**
Female	29	24.2
Marital status		
Married	119	**99.2**
Not married	1	0.8
Education level		
Read and writes	30	25.0
Not read or writes	45	**37.5**
Diploma education/ Intermediate education	30	25.0
University education	15	12.5
Residence		
Urban	75	**62.5**
Rural	45	37.5
Work		
Muscular effort	94	**78.3**
Intellectual effort	20	16.7
Both of them	6	5.0

Table (2): Number and percentage distribution of history assessment of patients under study (n= 120).

Items	N	%
Past chronic illness		
Hypertension	84	**70.0**
Arteriosclerosis	33	**27.5**
Thyroid disease	4	3.3
Diabetes	69	**57.5**
Chronic kidney disease	7	5.8
Chronic liver disease	17	**14.2**
Have you been in a hospital previously?		
Yes	65	**54.2**
No	55	45.8
Have you previously had surgeries?		
Yes	57	47.5
No	63	**52.5**
Do you have a previous history of a heart problem?		
Yes	62	**51.7**
No	58	48.3
Are you taking any of these medications		
Antihypertensive drugs	82	**68.3**
Drugs to control diabetes	66	**55.0**
Heart disease medication	37	**30.8**
Do you smoke		
Yes	63	**52.5**
No	57	47.5
How many cigarettes you smoke per day?	27.81±9.3	
Number of years	28.48±14.67	
Smoking index		
<20	21	33.3
>20	42	**66.7**
Do you practice exercise		
Yes	5	4.2
No	115	**95.8**

Figure (1): The total score of physical needs of patients under study, according to somatic health complaints scale (n=120).

Physical needs
(Somatic Health Complaints Scale)

10.8%
49.2%
40%

■ Extreme/ sever complaints   ■ Moderate complaints   ■ Mild complaints

Figure (2): The total score of physical needs of patients under study, according to barthel index scale (n=120).

Physical needs (Dependency Level)

5.8%
39.2%
55%

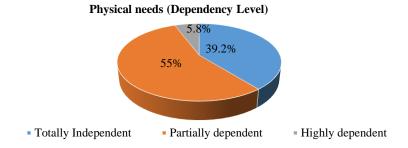■ Totally Independent   ■ Partially dependent   ■ Highly dependent

Table (3): The total score of psychological needs of patients under study, according to depression, anxiety, and stress scale (DASS) (n=120).

Item	Normal		Mild		Moderate		Severe		Extremely severe	
	N	%	N	%	N	%	N	%	N	%
Depression scale	15	12.5	23	19.2	32	**26.7**	28	23.3	22	**18.3**
Anxiety scale	14	11.7	18	15.0	24	**20.0**	29	24.2	35	**29.2**
Stress scale	37	30.8	30	25.0	25	**20.8**	16	13.3	12	**10.0**

Figure (3): The total score of social needs for patients under study, according to social support survey (n=120).

Social needs (Social Support Survey)

12.5%
20%
67.5%
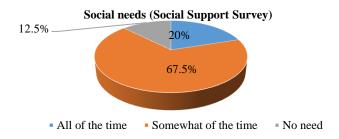
■ All of the time   ■ Somewhat of the time   ■ No need

Figure (4): Shows that 62.5% of them had moderate need, while 22.5% of patients under study had high learning needs regarding total learning needs.

Learning needs (Patient Learning Needs Scale)

15%   22.5%
62.5%

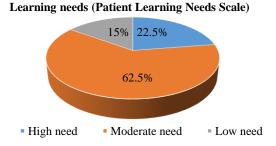■ High need   ■ Moderate need   ■ Low need

Table (5): Correlation between total mean scores of biosychosocial needs, learning needs of patients under study and their somatic health complaints, dependency level, social support, patient learning needs, depression level, anxiety level and stress level.

		Somatic health complaints	Barthel index	Social support	Patient learning needs	Depression	Anxiety
Barthel index	r	-0.209					
	P-value	0.022*					
Social support	r	0.103	-0.285				
	P-value	0.262	0.002*				
Patient learning needs	r	-0.182	0.323	-0.395			
	P-value	0.046*	<0.001**	<0.001**			
Depression	r	0.030	-0.154	0.215	-0.137		
	P-value	0.742	0.094	0.018*	0.135		
Anxiety	r	0.055	-0.092	0.242	-0.130	0.875	
	P-value	0.549	0.320	0.008*	0.156	<0.001**	
Stress	r	0.067	-0.298	0.207	-0.194	0.642	0.647
	P-value	0.466	<0.001**	0.023*	0.034*	<0.001**	<0.001**

Discussion:-

The result of the present study revealed that, more than one third of studied patients were from age 51-60 with mean age of 57.45±10.65; this result could be due to the risk of coronary heart disease increases after the age of 50, the changes that occur to individual's arteries due to age, this result is consistent with a study done by *Zakeri, et al., (2020),* in a study entitled "The effect of the Continuous Care Model on treatment adherence in patients with myocardial infarction"which revealed that the mean and SD of age of patients' with MI was 56.95± 10.26. Also, this result is consistent with a study done by *Mewton, et al., (2021),* in a study entitled "Effect of colchicine on myocardial injury in acute myocardial infarction "who revealed that the mean and SD of MI patients' age was 59.0±10.6.

In relation to gender of patients under study, more than three quarters of them were males, this result might be due to male patients were at greater risk for coronary heart disease in their work environment and most of them are smokers, the nature of the Egyptian society in which the male is responsible for his family members and financial resources which increases their stress, this result is in agreement with a study done by *Zakeri, et al., (2020)*, who revealed that three quarters of patients with MI were males.

Related to marital status the current study, showed that most of study subjects were married, this result might be due to most of the study subjects were above 50 years, usually by this age they are becoming married according to Egyptian society culture, this result is in the same line with a study done by *Herliani, et al., (2021)*, in a study entitled "Exercise and Physical Activity Counseling Needs among Cardiac Rehabilitation Patients " who revealed that most of patients under study were married. Also, this result is in the same line with a study done by *Sebring, et al., (2022)*, in a study entitled "Endodontic inflammatory disease: A risk indicator for the first myocardial infarction" who revealed that the majority of the studied patients were married.

Concerning the level of education, the present study revealed that more than one third of studied patients were not read or write; this result could be due to low socioeconomic status for study subjects, higher number of patients were old age, this result is in agreement with a study done by *Al-Abbudi et al., (2018)*, in a study entitled "Prevalence and Assessment of Severity of Depression Among Ischemic Heart Disease Patients" who reported that more than two thirds of the patients had low educational level and can't read and write.

In relation to residence of patients under study, less than two third of studied patients were from urban area, this result might be due to urban road traffic is an important source to

air pollution and noise exposure which are factors of CVD, this result is consistent with a study done by ***Desta, et al., (2020),*** in a study entitled" Treatment outcome of acute coronary syndrome patients admitted to Ayder Comprehensive Specialized Hospital" who revealed that, three quarters of patients living in urban areas.

Regarding to work of patients under study, more than three quarters of them were working muscular effort work, this result might be due to increase work strain and increase stress of lack income, this result is in the same line with a study done by ***Ferrerio, et al., (2017)***, in a study entitled "Job strain and the incidence of coronary heart diseases: doses the association differ among occupational classes" who reported that, higher coronary heart disease incidence rates were found among manual workers.

As regard to medical history of patients under study, more than two thirds of them had history of hypertension, more than half of them had history of diabetes, these results could be due to that the risk factors for MI is hypertension & diabetes**,** in the same context this result is in agreement with a study done by ***Weaver, et al., (2022)***, in a study entitled "Associations between neighborhood socioeconomic cluster and hypertension, diabetes, myocardial infarction, and coronary artery disease within a cohort of cardiac catheterization patients" who reported that more than two thirds of patients had history of hypertension in Cluster 1. Also, this result is supported by a study done by ***Almamari, et al., (2019),*** in a study entitled "Information needs of post myocardial infarction patients in Oman" who reported that more than half of MI patients had history of diabetes.

Concerning to previous hospitalization of patients under study, more than half of studied patients had history of hospitalization, this result could be due to that the most of patients had chronic diseases that leading to entering the hospital, this result is in the same line with a study done by ***Zakeri, et al., (2020),*** who reported that more than half of MI patients had a history of hospitalization.

As regard to previous surgeries of patients under study, more than half of studied patients were had no history of previous surgeries, this result is in agreement with a study done by ***Gamal, et al., (2021)***, in a study entitled "Biopsychosocial Needs of Patients Post Coronary Artery Bypass Graft" who reported that more than two third of the studied subjects had no history of previous surgeries.

In relation to previous history of a heart problem, of patients under study, more than half of studied patients were had previous history of a heart problem, this result is consistent with a study done by ***Ullah, et al., (2020)***, in a study entitled "Cardiovascular Risk Factors in Patients with Acute MI in a Secondary Hospital in Bangladesh" who reported that more than one third of AMI patients had history of premature CVD.

Concerning to history of taking medications of patients under study, more than two thirds of them had history of taking anti-hypertensive drugs and more than half of them had history of used drugs to control diabetes, in context, this result is in agreement with a study done by ***Ullah, et al., (2020)***, who reported that more than two thirds of AMI patients were take some form of anti-hypertensive drugs, more than one third of AMI were taking drugs to control diabetes.

Regarding to smoking status to patients under study, more than half of the studied patients had history of smoking, this result could be due to cigarette smoke usually associated with occurrence of MI, this result is supported with a study done by ***Li, et al., (2021),*** in a study entitled "Early risk stratification of acute myocardial infarction using a simple physiological prognostic scoring system" who revealed that more than half of MI patients were smoking.

In relation to exercise of patients under study, most of the studied patients did not practice exercise; this result might be due to the culture of Egypt society doesn't emphasize the importance of exercise, this result is in agreement with a study done by ***Kang, et al., (2021),*** in a study entitled "Health-related

quality of life and its predictors in Korean patients with myocardial infarction in the acute phase" who reported that more than half of MI patients had no physical activity.

Concerning the physical needs of the studied patients as regard somatic health complaints, the study result revealed that less than half of patients under study had extreme/ sever complaints, while two fifth of them had moderate complaints regarding physical needs, this result could be due to the patient fear from recurrence of chest pain during performing the activities, this result is consistent with a study done by *Rai, and Beenish, (2021)*, in a study entitled "Coronary Artery Disease: Stat Pearls" who reported that within the weeks from a coronary incident, patients repeatedly complained of somatic health complaints focused on (Chest pain, dyspnea, sleep problems and fatigue).

Additionally, this result is congruent with a study done by *Endalew, et al., (2021),* in a study entitled "Health-Related Quality of Life and Associated Factors among Myocardial Infarction Patients" who stated that MI patients had impaired in all domains of health-related quality of life, but physical health was the most affected domain.

In relation to physical needs of the studied patients as regard dependency level, the study result showed that more than one-third of patients under study were totally independent, while more than half of them were partially dependent regarding physical needs, this result could be due to that patients with MI having higher rates of complications which can affect their physical ability to do daily activities, this result is supported by a study done by *Ishii, et al., (2020),* in a study entitled "Short-term exposure to desert dust and the risk of acute myocardial infarction" who reported that more than two thirds of MI patients were low ADL ability on admission.

Furthermore, this result is in agreement with a study done by *Hajduk*, *et al., (2019),* in a study entitled "Association between mobility measured during hospitalization and functional outcomes in older adults with acute myocardial

infarction in the SILVER-AMI Study" who reported that more than one-third of AMI patients were had impaired activity of daily living.

In relation to psychological needs of the studied patients as regard depression, anxiety, less than one quarter of patients under study were had extremely severe depression, while more than one quarter of them were had moderate depression. more than one quarter of them were extremely severe anxiety, while less than one quarter of them had moderate anxiety, this result could be due to fear from disease as a life threatening condition, hospitalization, this result is in agreement with a study done by *Olsen, (2020),* in a study entitled "coronary heart disease and cardiac rehabilitation. Participation rate, predictors and effects on symptoms of anxiety and depression, and employment status of patients following percutaneous coronary intervention" who reported that more than one quarter of patients had symptoms of anxiety and less than one quarter had symptoms of depression.

Additionally, this result is supported by a study done by *Murphy, et al., (2020),* in a study entitled "Anxiety and depression after a cardiac event" who reported that anxiety rate of patients were more than one quarter, depression rate were less than one quarter.

Concerning to psychological needs of the studied patients as regard stress, the study result showed that less than one quarter of them had extremely severe stress, while nearly one quarter of them had moderate stress, this result might be due to physical disability, hospitalization, this result is consistent with a study done by *Schmidt, et al., (2020),* in a study entitled "Stress in women with acute myocardial infarction" who reported that less than three quarters of AMI patients were experiencing stress. Also, this result is in agreement with a study done by *Vaccarino, et al., (2021),* in a study entitled "Association of mental stress–induced myocardial ischemia with cardiovascular events in patients with coronary heart disease" who found that less than one quarter of studied patients had mental stress.

Regarding to social needs of the studied patients, less than one quarter of them were all of the time had social needs, while more than two thirds of them were somewhat of the time had social needs, this result might be due to patient with MI not participate in activities with society and had difficulty to cope with health condition, manage the disease, this result is consistent with a study done by *Green, et al., (2020),* in a study entitled "Usefulness of social support in older adults after hospitalization for acute myocardial infarction" who reported that one quarter of AMI patients were some of the time had social support needs.

Also, this result is in agreement with a study done by *Pedersen, et al., (2021),* in a study entitled "Mastery of everyday life and social support needs in older vulnerable women with myocardial infarction and their relatives" who reported that Patients with MI needed social support to navigate in everyday life.

Regarding to learning needs of the studied patients, less than one quarter of patients under study had high total learning needs, while more than half of them had moderate need regarding total learning needs; this result might be due to increased number of illiterate patients in the study, have decrease in knowledge about disease, this result is consistent with a study done by *Alsaqri, et al., (2020),* in a study entitled "Saudi myocardial infarction patients' learning needs: Implications for cardiac education program" who found that MI patients had high need for total information before their discharge from the hospital. The study result also is supported by a study done by *Chi, et al., (2021),* in a study entitled "Identify the patients' perceived learning needs after myocardial infarction "who found that learning needs post MI patients were highly important learning needs in all domains.

Concerning the physical needs of the studied patients, there were negative statistically significant correlation between barthel index with somatic health complaints, social support and stress, this result is might be due to low social support for patient with MI can lead to increase stress which cause worse health, this result is in agreement with a study done by

Endalew, et al., (2021), who reported that a relatively weak correlation was observed between the physical health domain and social health domain. Also, this result is consistent with a study done by *Nogueira, et al., (2018),* in a study entitled "Psychological symptoms in climacteric women with heart" who found that there was a correlation between the psychological and physical symptoms.

In relation to psychological needs (depression, anxiety, and stress) of the studied patients, there were positive statistically significant correlation between depression with anxiety and stress, positive statistically significant correlation was found between anxiety and stress, this result could be due to patient with MI fear from the serious complications so increased depression, anxiety and stress, this result is supported by a study done by *Vaswani, (2020),* in a study entitled "Psychological Stress in Myocardial Infarction Patients" who reported that increased incidence of subjective psychological stress were strongly associated with depressive symptoms, increased levels of perceived stress and this was associated with increased prevalence of depression and anxiety.

Also, this result is consistent with a study done by *Nogueira, et al., (2018),* who reported that there was a positive correlation between the psychological symptoms and the presence of depression.

Regarding to correlation between psychological needs and social needs of the studied patients, there were positive statistically significant correlation between social support and depression, anxiety and stress, this result could be due to increase social support may lead to improvement of the psychological condition for patient, this result is in agreement with a study done by *Peltzer, et al., (2020),* in a study entitled "Health literacy in persons at risk of and patients with coronary heart disease" who found that lack of access to social support have been associated with poor psychosocial well-being among patients living with IHD.

Additionally, this result is consistent with a study done by *Murphy, et al., (2020),*

who found that significant association between both living alone and being unpartnered with depression. Also, this result is supported by a study done by ***Manemann, et al., (2018),*** in a study entitled "Perceived social isolation and outcomes in patients with heart failure" who found that social isolation is associated with poor mental health including depression. Also, this result is consistent with a study done by ***Gariépy, et al., (2016),*** in a study entitled "Social support and protection from depression" who found that there was an association between depression and lower social support.

As regard learning needs and physical, psychological, social needs of the studied patients, there was negative statistically significant correlation between patient learning needs and somatic health complaints, social support and stress, this result is might be due to the patient with low social support is less information about disease, more stress, health worse, this result is in agreement with a study done by ***Anderson, et al., (2017),*** in a study entitled "Patient education in the management of coronary heart disease" who found that, patients with high education had more improvement in health related quality of life and less complicated than low education.

Conclusion:-

Based on the findings of the present study, it can be concluded that:

The study has indicated that the studied patients had moderate psychological and learning needs. While half of studied patients had an extreme/ sever complaints, more than half of them were partially dependent regarding physical needs and more than two thirds of them were somewhat of the time had social needs.

Additionally, there was highly statistically significant relation between patients' education level and somatic health complaints. Also, there were highly statistically significant relation between patients' education, work and social support needs and between patients' education, work and patient learning needs.

Recommendations:-

• Simple booklet written in Arabic language suggested to developed and available for all patients with MI with all needed information included.

• Continuous assessment of biopsychosocial needs and learning needs for patient with MI after discharge at follow-up period.

• Educational program suggested to be designed to improve knowledge regarding to needs for patients with MI.

• Further research studies are needed to focus on studying factors affecting biosychosocial needs for patients with MI.

• Further studies are to be conducted about methods to meet the different needs for patients with MI.

• Further studies should be conducted to evaluate the effectiveness of educational intervention on patients' quality of life.

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