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Psycho-educational Program on Psychological Status of Patients with Coronary Heart Disease

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Abstract: *Psychological symptoms are strongly associated with coronary heart disease. Depression, anxiety, stress, anger, somatic symptoms and social isolation are the most common psychological distress disorders related to coronary heart disease. The aim of the present study was to evaluate the effects of psycho-education program on psychological status of patients with coronary heart disease. A quasi-experimental design (one group pre- test post- test design) was utilized to achieve the aim of the study. The study was conducted at coronary care unit (CCU) in Benha university hospital in Benha City, Kaluobia Governorate. A convenience sample of a total 40 patients with coronary heart disease from both sexes who are hospitalized in the coronary care unit (CCU).Two tools for data collection were used. Tool (1):- Structured Interview Questionnaire to elicit information about socio-demographic and clinical characteristics Tool (2):- Goldberg's General Health Questionnaire (GHQ).The results of this study reveals that the total means of overall GHQ scores were a highly statistical significantly decreased post program (44.3500±7.48862) comparing to pre- program (84.7750±9.95757) at p-value= (< 0.001). Based on the result of this study it was concluded that psycho-educational program is the key element for improvement of psychological status of patients with coronary heart disease. So, it is recommended to application of psycho-educational program for all patients with coronary heart disease. Further studies are suggested, with greater sample sizes and longer follow-up periods at different time-intervals.*

Keywords*: Psycho-educational, Program, Psychological status, Coronary heart disease.*

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I. Introduction

Coronary heart disease (CHD) is a major cause of death and disability in developed countries ***(Wilson & Douglas, 2017).*** Although CHD mortality rates worldwide have declined over the past four decades, CHD remains responsible for about one-third or more of all deaths in individuals over age 35 years. These disorders are responsible for more than 25% of all deaths worldwide ***(Benjamin, 2017).***

CHD imposes a significant physical, psychological and social burden on patients and on their family members and commonly elicits anxiety and depression. Both depression and anxiety are associated with worse prognosis after a cardiac event. People with depression and CHD have an estimated 1.5 to two times increased risk of adverse cardiovascular outcomes, including mortality and new cardiovascular events, and people with anxiety and CHD have an estimated 36% increased risk of adverse cardiac outcomes ***(Norlund, 2018).*** In addition, depression and/or anxiety in people with CHD is associated with adverse quality of life ***(Piepoli et al., 2016)***.

These two problems, in addition to lack of social support, are among the most common psychological responses in patients with cardiovascular disease, and they not only increase the use of healthcare services, but also the risk of disease relapse or exacerbation and the costs of acute and long-term healthcare**.** In addition, depression and/or anxiety in people with CHD is associated with adverse quality of life ***(Taylor-Rodgers, & Batterham, 2014).***

Mild and severe feelings of depression, anxiety, anger, somatic symptoms and social isolation along with their related cognitive correlates, painfully burst into the individual's experience and accompany him/her throughout the adaptation path. In this process, several variables come into play: from personal characteristics to the disease severity, from personal coping styles to distal or closer social contexts, and from individual cognitive schemata and reality construction to the quality of the social support received ***(Rehman et al., 2016).***

In the other side, an optimistic, self-confident individual with a high self-efficacy and self-control, a good coping capacity, and a supportive and empathic social environment is more likely to quickly and positively adapt to the disease. A pessimistic, insecure, helpless, and discouraged individual with little or inadequate coping skills, who is socially isolated or with little or no social support at all, is unlikely to adapt to the disease ***(Samson & Siam, 2018)***.

The treatment of coronary artery disease is routinely medicinal and non-pharmacological. Non-pharmacological treatment for these patients involves removal of the underlying factors and lifestyle changes. In recent years, alternative therapies have been employed, such as music therapy, relaxation, therapeutic massage, guided imagery and psychological treatments that include cognitive–behavioral therapies, and psycho-educational programs (PEPs) ***(Rabito & Kaye, 2013).***

Patient education is an essential part of the medical rehabilitation of patients with coronary heart disease targeting self-management behavior to reduce risk factors and subsequent cardiac events. Also psychological treatments for depression, anxiety, stress or maladaptive behaviors are sometimes offered to patients, either individually or as part of a comprehensive package of cardiac rehabilitation. Psychological interventions did not reduce mortality (any cause), or the risk cardiac surgery or having another heart attack. Psychological interventions reduced the risk of cardiac deaths and reduced participant-reported symptoms of depression, anxiety, and stress. International meta-analyses provide evidence for the effectiveness PEPs regarding risk factors and mental health, whereas evidence for mortality, myocardial infarction and quality of life is heterogeneous ***(Richards et al., 2017).***

Recently, researchers have focused on using PEPs as a fundamental treatment for patients' psychological problems. PEPs can be used either with individuals, groups, or communities, targeting individuals in high-risk groups. These methods include training interventions to induce changes in behavioral and cognitive patterns. PEPs are usually aimed at directing the patients' learning, providing opportunities for them to express their emotions in a safe environment, creating real hope or strengthening it, offering solutions to enhance the patients' self-awareness, and providing opportunities for them to practice their new knowledge ***(Morokuma et al., 2013)***.

People with serious conditions such as CHD have psychological distress. Nurse can help to deal with the mental challenges that come with any CHD-related complications that the patient may have. Also, they can help to learn to manage the stress in patient's life through education. This can affect the success of treatment plan and improve their quality of life ***(Healthwise, 2017).***

Significant of the study:

According to the latest WHO data published in May 2014 Coronary Heart Disease deaths in Egypt reached 107,232 or 23.14% of total deaths. The age adjusted death rate is 186.36 per 100,000 of population ranks Egypt 33 in the world ***(WHO, 2014).*** Many patients with CHD have persistent symptoms of depression and anxiety, which significantly influence their quality of life (QOL) and prognosis, often leading to a vicious cycle ***(Intarakamhang, & Intarakamhang, 2013)***. During the past 50 years, many studies have established a correlation between psychological risk factors as anxiety, depression, and hostility) and CHD ***(Taylor-Rodgers, & Batterham, 2014).*** Depression is a most medical dilemma and is highly prevalent among coronary heart disease patients***(Carney, & Freedland, 2012).***Affects about 20% of people with CHD, which may be associated with psycho-social issues around loss, and is linked to poor quality of life, outcomes and health service use ***(Tylee et al., 2014).***

Also, high prevalence of anxiety is documented in patients with coronary artery disease. Specifically, 70−80% of individuals who have suffered an acute heart attack experience anxiety, which persists long-term in about 20−25% of cases. Anxiety presenting shortly after the acute coronary syndrome may persist up to 2 years later at clinically significant levels ***(Polikandrioti & Olympios, 2014)***. It is necessary to pay more attention to the psychosocial status of CHD in order to help them achieve normal lives**.** Therefore, indigenous forms of PEPs may be useful for patients with CHD, to help them reach maximum functional health ***(Taylor-Rodgers & Batterham, 2014)***.

Aim of the study:

This study aimed to evaluate the effects of psycho-education program on psychological status of patients with coronary heart disease.

Hypothesis:

Psycho-education program might improve psychological status of patients with coronary heart disease.

Subject and methods:

Subject:

Research design:

A quasi-experimental design (one group pre-test post-test design) was utilized to achieve the aim of the study.

Setting:

The study was conducted at coronary care unit (CCU) in Benha university hospital in Benha City, Kaluobia Governorate.

Subject:

A convenience sample of a total 40 patients with coronary heart disease from both sexes who are hospitalized in the coronary care unit (CCU) at the previously mentioned setting was recruited in the study according to:

Inclusion criteria:

- Age range: from 20 to 65 years.
- Both sexes (males and females).
- Ability to respond to inquiries and attend meetings.
- Willingness to participate in the study and ability to read and write.

Exclusion criteria:

- Patients with neurological or psychiatric disorder.
- Patient with brain disorders (such as Alzheimer's, stroke, or transient ischemic attack).
- Patients who refused to participate in the study,
- Occurrence of any acute or urgent medical or psychological problems.

Tools of data collection:

The following tools were used for data collection:

Tool (1):- Structured Interview Questionnaire.

This tool was developed by the researcher based on pertinent literature to elicit information about socio-demographic characteristics, which include socio-demographic characteristics: It includes age, gender, educational level, marital status, occupation, and care giver during hospitalization, and clinical characteristics which includes onset of diseases, previous hospitalization admission, previous open heart surgery, complication of heart surgery, and having chronic disease.

Tool (2):- Goldberg's General Health Questionnaire (GHQ).

The GHQ developed by ***Golderberg & Williams (1988),*** developed as a screening tool to detect those likely to have or to be at risk of developing psychiatric disorders which assess mental health of the individual. The scale consists of 28 items that are rated on a three-point Likert scale. The scale has four dimensions: somatic symptoms, anxiety, social dysfunction, and depression. The possible score for the GHQ questionnaire ranges from 28 to 112.The overall score of the scale indicated the individual's level of mental health, with higher scores indicating a lower level of mental health.

Validity of the tools:

They were tested for content validity by jury of five experts in the field of psychiatric health nursing and community nursing specialty to ascertain relevance and completeness. The tools proved to be valid.

Reliability of the tools:

Reliability was applied by the researcher for testing the internal consistency of the tool, by administration of the same tools to the same subjects under similar conditions on one or more occasions. Answers from repeated testing were compared (Test-re-test reliability). Test-retest reliability has been reported to be high (0.78 to 0 0.9)**.**

II. Methods

Administrative approval:

Official letters were issued from the faculty of nursing, to the director of Benha university hospital in Benha City, explaining the aim of the study and requesting their permission for data collection and participation of patients in the research process.

Ethical considerations:

The patients with coronary heart disease were briefed about the purpose of the study, encouraged and give fully informed verbal consent to participate. It was emphasized that all data collected was strictly confidential and the data would be used for scientific purposes only and the patient has full right to withdraw from the study at any time.

Pilot study:

A pilot study was conducted on 10% of the sample to test by the designed assessment tool and its applicability on the sample, and in order to estimate the time needed to fill in the sheets, and to identify obstacles or problems in data collection and accordingly necessary modifications were done. Subjects who shared in the pilot study were excluded from the main study sample.

Data collection:

The study was carried out in the period from May 2017 to July 2017. The researcher collected the data during the morning at two days/week from 10 AM to 12 AM. The subjects were divided into 6 groups; each of them consisted of 6-7 patients with coronary heart disease. The period of implementation was 3 months. Implementation of the study passed into three phases (pre assessment phase, implementation phase and post assessment phase).

Pre assessment phase:

A comfortable, private place was chosen for the interviewers. Orientation was done about the researcher's name, purpose, significance, content of the study. Subjects were interviewed where pre-assessment was done using (1) Structured Interviewing Questionnaire, and Goldberg's General Health Questionnaire (GHQ).

Implementation phase:

- This training program has a general objective and divided into sessions each session has a set of specific objectives. This was achieved through several teaching methods such: brain storming, lecture, discussion, providing the example. Data show, video, role play and pictures were used as media. At the end of each session summary, feedback, further clarifications were done for vague items. The nurses were enrolled for 8 sessions, each lasting for one hour on a daily basis. Two sessions in a week were taken during the morning. Each session takes about 60 minutes a day.

- In addition to routine medical care, the experimental group received PEP intervention, which included discussions and training materials on skills for coping with anxiety with an emphasis on lifestyle, skills to deal with depression, anger management, problem solving and muscular relaxation techniques.

- At the first meeting rules were set for the group sessions. Everything that was said within the group should be considered as strictly confidential and must not be communicated to anyone outside the group. The importance of being a participant and show each other respect was emphasized.

- Relaxation exercises to end the commonly progressive muscle relaxation techniques were used. Meetings the participants were taught techniques for relaxation. In one of the exercises the patient was asked to describe a situation which had provoked anger and describe it to the group. The patient's stressful and hostile responses were identified and discussed. behavioral strategies were used in an attempt to alter the participant's stressful and angry responses.

- In another exercise, behavioral strategies for problem solving were used in situations, which were perceived and described as threatening. The actual problem was observed, discussed and re-formulated by the group and the patient concerned; the other participants were active in giving suggestions to solutions. These were evaluated and judged by the patient who had presented the problem.

The content of the intervention program sessions was as follows:

Based on the results obtained from the assessment tools and review of literature, the program content was developed by the researcher in the form of a booklet, which was distributed for patients in the first session.

Sessions of psycho-education focused on:

The 1st session:

Introducing the participants to each other, presenting the objectives of the procedure, listening to the participants' feelings and problems.

The 2nd session:

Understanding the nature of CHD, training in a variety of preventive methods, treatments, and disease implications and consequences.

The 3rd session:

Training on skills for coping with anxiety, with an emphasis on lifestyle.

The 4th session:

Training on anger management**.**

The 5th session:

Training on problem-solving skills.

The 6th session:

Training on skills to deal with depression.

The 7th session:

Relaxation training.

The 8th session:

Summarization and conclusion, reviewing the trained materials, receiving feedback from patients.

Evaluation phase:

An evaluation was done using Structured Interview Questionnaire and Goldberg's General Health Questionnaire (GHQ) to evaluate the impact of the psycho-education program on psychological status of coronary heart disease patients.

Statistical analysis:

The results were statistically analyzed by using SPSS version 20.Numerical data were expressed as mean ± SD, and range. Qualitative data were expressed as frequency and percentage. Relations between different variables were tested using Fridman test, t-student. Pearson's Correlation analysis was used to show strength and direction of association between two quantitative variables. P value < 0.05 is considered significant.

III. Results:

Table (1): Frequency distribution of study sample regarding socio-demographic characteristics (N=40).

Socio-demographic characteristics	No	%
Age in years.		
• 20-29	10	25.0
• 30-39	11	27.5
• 40-50	19	47.5
Mean ±SD	34.58±8.95	
Gender.	26	65.0
• Male	14	35.0
• Female		
Educational level.		
• Read and write	12	30.0
• Secondary education	19	47.5
• University education	9	22.5
Marital status.		
• Single	6	15.0
• Married	24	60.0
• Divorced	8	20.0
• Widow	2	5.0
Occupation.		
• Yes	24	60.0
• No	16	40.0
Caregiver during hospitalization.		
• Mother	6	15.0
• Father	11	27.5
• Son /daughter	14	35.0
• Husband	6	15.0
• Wife	3	7.5

Table (2): Frequency distribution of the study sample regarding clinical data (N=40).

Clinical data	no	%
Onset of disease (in years).		
• Less than one year	8	20.0
• 1-3year year	15	37.5
• 3-5year year	17	42.5
Previous hospitalization.		
• Yes	30	75.0
• No	10	25.0
Previous open heart surgery.		
• Yes	8	20.0
• No	32	80.0
Complications of heart surgery.		
• Yes	5	12.5
• No	35	87.5
Having chronic disease.		
• No	20	50.0
• Diabetes	15	37.5
• Hypertension	5	12.5

Table (3): Comparison between mean scores of somatic subscale of the study sample pre and post program (N=40).

Somatic subscale	Preprogram	Post program	Paired t test	P value
	Mean ±SD	Mean ±SD		
1. Been feeling perfectly well and in good health?	3.1000±.63246	1.5750±.78078	9.297	<0.001**
2. Been feeling in need of a good tonic?	2.9750±.65974	1.5000±.64051	10.303	<0.001**
3. Been feeling run down and out of sorts?	2.7750±.61966	1.8000±.79097	5.503	<0.001**
4. Felt that you are ill?	2.9250±.47434	1.6750±.85896	7.486	<0.001**
5. Been getting any pains in your head?	2.7750±.69752	1.4750±.50574	8.286	<0.001**
6. Been getting a feeling of tightness or pressure in your head?	2.8250±.81296	1.5500±.50383	7.965	<0.001**
7. Been having hot or cold spells?	2.8500±.73554	1.8000±.75786	5.649	<0.001**
Total somatic mean score	**20.2250±3.05914**	**11.3750±2.77985**	**11.926**	**<0.001****

**<0.001 a highly statistically significant

Table (4): Comparison between mean scores of anxiety and insomnia subscale of the study sample pre and post program (N=40).

Anxiety and insomnia subscale	Pre program	Post program	Paired t test	P value
	Mean ±SD	Mean ±SD		
1. Lost much sleep over worry?	2.9500±.78283	1.7750±.65974	7.014	<0.001**
2. Had difficulty in staying asleep once you are off?	2.8500±.69982	1.7500±.74248	6.048	<0.001**
3. Felt constantly under strain?	3.1000±.49614	1.2500±.43853	21.932	<0.001**
4. Been getting edgy and bad-tempered?	3.0000±.67937	1.4500±.50383	11.590	<0.001**
5. Been getting scared or panicky for no good reason?	3.1000±.67178	1.4500±.50383	13.559	<0.001**
6. Found everything getting on top of you?	3.1250±.64798	1.3500±.48305	18.117	<0.001**
7. Been feeling nervous or strung-up all the time?	2.7750±.65974	1.3500±.48305	11.086	<0.001**
Total anxiety and insomnia mean score	**20.9000±3.00256**	**10.3750±2.10844**	**18.126**	**<0.001****

**<0.001 a highly statistically significant

Table (5): Comparison between mean scores of social dysfunction subscale of the study sample pre and post program (N=40).

Social dysfunction subscale	Post program	Post program	Paired t test	P value
	Mean ±SD	Mean ±SD		
1. Been managing to keep yourself busy and occupied?	3.0250±.69752	1.3500±.48305	13.863	<0.001**
2. Been taking longer over the things you do?	3.0750±.65584	1.2500±.43853	15.447	<0.001**
3. Felt on the whole you were doing things well?	3.0000±.64051	1.2500±.43853	13.688	<0.001**
4. Been satisfied with the way you've carried out your tasks?	3.0500±.67748	1.3000±.46410	13.688	<0.001**
5. Felt you are playing a useful part in things?	2.9250±.72986	1.4500±.50383	10.303	<0.001**
6. Felt capable of making decisions about things?	2.9750±.61966	1.9000±.90014	6.208	<0.001**
Total social dysfunction mean score	**18.0500±3.07971**	**8.5000±2.13638**	**15.718**	**<0.001****

**<0.001 a highly statistically significant

Table (6): Comparison between mean scores of severe depression subscale of the study sample pre and post program (N=40).

Severe depression subscale	Pre program	Post program	Paired t test	P value
	Mean ±SD	Mean ±SD		
1. Been able to enjoy your normal day-to-day activities?	3.1750±.71208	1.8000±.68687	8.655	<0.001**
2. Been thinking of yourself as a worthless person?	3.2750±.64001	1.6500±.66216	10.791	<0.001**
3. Felt that life is entirely hopeless?	3.0250±.53048	1.6500±.92126	7.729	<0.001**
4. Felt that life isn't worth living?	3.1250±.82236	1.9250±.82858	6.311	<0.001**
5. Though of the possibility that you might make away with yourself?	3.3500±.80224	1.7250±.71567	9.325	<0.001**
6. Found at times you couldn't do anything because your nerves were too bad?	3.2250±.80024	1.7000±.64847	11.002	<0.001**
7. Found yourself wishing you were dead and away from it all?	3.1250±.75744	1.7500±.74248	9.131	<0.001**
8. Found that the idea of taking your own life kept coming into your mind?	3.3000±.60764	1.9000±.77790	8.374	<0.001**
Total severe depression mean score	**25.6000±3.02807**	**14.1000±3.00256**	**17.143**	**<0.001****

**<0.001 a highly statistically significant

Table (7): Comparison between total mean scores of General Health Questionnaire of the study sample pre and post program (N=40).

Goldberg's General Health Questionnaire	Pre program	Post program	Paired t test	P value
	Mean ±SD	Mean ±SD		
Total somatic mean score	20.2250±3.05914	11.3750±2.77985	11.926	<0.001**
Total anxiety and insomnia mean score	20.9000±3.00256	10.3750±2.10844	18.126	<0.001**
Total social dysfunction mean score	18.0500±3.07971	8.5000±2.13638	15.718	<0.001**
Total severe depression mean score	25.6000±3.02807	14.1000±3.00256	17.143	<0.001**
Total score	**84.7750±9.95757**	**44.3500±7.48862**	**19.37**	**<0.001****

**<0.001 a highly statistically significant

Table (8): Relationships between total general health questionnaire and socio-demographic characteristics of the studied sample pre -program (N=40).

Socio-demographic characteristics	Preprogram			
	Total general health questionnaire	Statistical test		P value
		F or T	Test value	
Age in years.	**Mean ± SD**			
• 20-29	81.9000±10.81614	F	0.899	>0.05
• 30-39	87.7273±9.23137			
• 40-50	84.5789±9.95164			
Gender.				
• Male	86.7308±9.59816	T	1.71	>0.05
• Female	81.1429±9.92167			
Educational level.				
• Read and write	90.6667±18.230001	F	2.11	>0.05
• Secondary education	87.7895±8.25684			
• University education	80.6667±11.19151			
Marital status.				
• Single	84.1667±6.82398			
• Married	87.4167±9.11719	F	1.94	>0.05
• Divorced	79.3750±12.77204			
• Widow	76.5000±6.36396			
ccupation.				
• Yes	86.2500±9.70544	T	1.14	>0.05
• No	82.5625±10.23047			

>0.05 no statistically significant.

Table (9): Relationships between total general health questionnaire and socio-demographic characteristics of the studied sample post program (N=40).

Socio-demographic characteristics	Post program			
	Total general health questionnaire	Statistical test		P value
		F or T	Test value	
Age in years.	**Mean ± SD**			
• 20-29 year	44.5000±6.05989	F	0.037	>0.05
• 30-39 year	43.8182±7.49424			
• 40-50 year	44.5789±8.46769			
Gender.				
• Male	44.4231±7.39282	T	0.081	>0.05
• Female	44.2143±7.94383			
Educational level.				
• Read and write	45.6667±6.80686	F	1.37	>0.05
• Secondary education	43.8421±6.56813			
• University education	48.1111±10.05540			
Marital status.				
• Single	46.1667±9.53764	F	0.180	>0.05
• Married	44.2083±7.16258			
• Divorced	44.0000±8.46843			
• Widow	42.0000±4.24264			
Occupation.				
• Yes	45.4167±6.87096	T	1.06	>0.05
• No	42.7500±8.29859			

>0.05 no statistically significant.

Table (1): Reveals that more than less than one half of patients (47.5%) were in the age group of 40-50 years with mean age 34.58±8.95 and about more than two thirds of the study sample (65.0%) were male. This table also shows that less than one half (47.5%) their educational level were secondary education, and about more than half (60%) of sample were married, while about more than half (60.0%) of sample were work, and more than one third (35.0%) their care giver during hospitalization were son/daughter.

Table (2): Shows that less than one halve of the study sample (37.5%) onset of their disease were more than five years, and about three quarter (70.0%) have previous hospitalization. This table also shows that the majority of the study sample (80.0%) have previous open heart surgery, and also the majority have complication of heart surgery, also table reveals about halve of the sample(50.0%) haven't chronic disease.

Table (3): Displays that there were a highly statistically significant difference between mean scores of somatic subscale of the study sample pre and post program at p-value =< 0.001.**Table(4)**illustrates that there were a highly significant relation between mean scores of anxiety and insomnia subscale of the study sample pre and post program at p-value =< 0.001.

Table (5): Shows that there were a highly statistically significant difference between mean scores of social dysfunction subscale of the study sample pre and post program at p-value=< 0.001. Also, **Table (6)** reveals there were a highly significant difference between mean scores of severe depression subscale of the study sample pre and post program**.**

Table (7): illustrated that there were a highly statistically significant difference between total mean score of general health questionnaire of the study sample pre and post program.

Table (8): Reveals that there were no significant relation between total mean scores of general health questionnaire and socio-demographic characteristics of the study sample preprogram. Also, **Table (9):** Illustrates that there were no significant relation between total mean scores of general health questionnaire and socio-demographic characteristics of the study sample post program.

IV. Discussion

Patients with CHD are confronted with several psychological problems ***(Reid et al., 2013).*** Studies have shown that 30% - 72% of CHD patients demonstrate symptoms of depression, and 40% - 65% show symptoms of anxiety. These two problems, in addition to lack of social support, are among the most common psychological responses in patients with cardiovascular disease, and they not only increase the use of healthcare services, but also the risk of disease relapse or exacerbation (***Dehdari et al., 2009)*** and the costs of acute and long-term healthcare ***(Taylor-Rodgers et al., 2014).***

This study aimed to evaluate the effects of psycho-education program on mental health in patients with coronary heart disease, and was conducted at coronary care unit (CCU) in Benha university hospital in Benha City, Kaluobia Governorate.

The result of the present study reveals that more than half of patients were in the age group of 40-50 years with a mean age 34.58±8.95. From the viewpoint of researcher this may be due to that this disease is mostly common in this age group. This result agreement with ***Orth-Gomér, (2012)*** who founded that the mean age of the studied sample were 42± 7 years.in the other hand, this result inconsistent with ***Park et al., (2013)*** who stated that the mean age of the studied sample were 58 years.

Regarding to gender, the results shows that more than two thirds of the study sample were male. From the viewpoint of researcher this may be due to CHD high incidence rate among this age group. This result consistent with ***Whalley et al., (2011)*** who stated that about three quarter of his study were male. Regarding to marital status, the result of the present study shows that more than half were married. This result consistent with ***Eng et al., (2011)*** his result shows that the majority of the samples were married.

This table also shows that less than one half, their educational level were secondary education. From the viewpoint of researcher this may be due to most people refuse to complete his learning due to costs of high learning. These findings were similar to the study done by ***Bashiri et al., (2016)*** who found that more than half of the studied sample had middle school education. The study shows that about more than half of sample were married because of the majority of the sample is from rural areas. These findings were similar to the study done by ***Valiee et al., (2016)*** who found that the majority of patients were married.

The result of the present study reveals that about more than half of sample were work. From the viewpoint of researcher this may be due to more of the study sample were male and married and have more responsibility. This result consistent with study by ***Meng et al., (2014)*** who founded that their sample in his study mostly consisted of employed persons. The study shows also that, more than one third of the studied sample their care giver during hospitalization were son/daughter. These findings were similar to the result of the study done by ***Melo-Carrillo et al., (2016)*** who found the majority of the sample their care giver during hospitalization were son/daughter.

The result of the present study shows that less than half of the study sample were onset of their disease about more than five years, and about three quarter have previous hospitalization. This table also shows that the majority of the study sample have previous open heart surgery, and also the majority have complication of heart surgery. This is due to the CHD is a serious disease and have multiple complications. These finding were similar to ***Bashiri et al., (2016)*** who found that the most of the sample their onset of disease about more than five years, having previous hospitalization and were previous open heart surgery.

The present study displays that there were a highly significant difference between mean scores of somatic symptoms of the study sample pre and post program. From the researcher point of view this means that the psycho-educational program more effect on improving the somatic symptoms of the CHD patients. This finding was similar to the study done by ***Luciano et al., (2011)*** who found positive effects of PEPs on physical problems in patients with different disorders as CHD.

The present study also illustrates that there were a highly significant difference between mean scores of anxiety and insomnia symptoms of the study sample pre and post program. From view point of the researcher this mean that patients with CHD imposes a significant physical, psychological and social burden on patients and commonly elicits anxiety and insomnia. Another causes, this mean the effect of a PEP on improving insomnia, and anxiety by using the researcher anxiety management strategies such as (writing about an anxiety, provoking situation, using positive confrontation, modulating anxious thoughts and control breathing. This result consistent with ***Guo et al., (2013)*** who reported that psychological interventions that provide a supportive environment and cognitive-behavioral therapy can reduce symptoms of anxiety and insomnia.

This finding is consistent with the results of ***Taylor-Rodgers et al., (2014)***, who studied the effects of PEP intervention on the help-seeking attitudes and intentions among young adults with regard to mental health. This study showed that PEP improves mental health by improving psychological symptoms, such as anxiety and depression in patients with CHD. For instance, ***Ahangarzade & Ezadi, (2012)*** reported that anger management training could improve mental health in nursing students. On other hands***, Dusseldorp et al., (2012)*** reported that these methods did not significantly affect anxiety (10 studies) or depression (13 studies) in patients with CHD. Moreover, ***Hartford et al., (2002)*** reported that the psychological intervention did not significantly affect the patients' anxiety.

This study shows that there were a highly significant difference between mean scores of social dysfunction symptoms of the study sample pre and post program. This may be due to positive effect of the researcher program by using PEPs helped CHD patients improve their psychological status through reducing tension, relieving their negative emotions, and improving their social relationships. These findings agreement with ***Hashemzadeh et al., (2011)*** who used relaxation and distraction in patients with cardiac disorders and post-cardiac surgery, and reported that these methods were effective in reducing patients' social dysfunction.

Also, the present study reveals that there were a highly significant difference between mean scores of severe depression symptoms of the study sample pre and post program. From view point of the researcher this may be due to, that the researcher uses strategies that manage depression such as(express their negative thoughts and accepting unpleasant situation which they are out of control, strengthen personal relationships through social skills, assertiveness, and negotiation skills, having a comfortable position, focusing on a calming mental picture and having positive attitude.

This result agreement with ***D'Souza et al., (2010)*** who used psychological training, and found that this method was effective not only in reducing the severity of anxiety and depressive symptoms, but also in decreasing the rate of relapse in patients. This result disagreement with a study by ***Johnston et al.,(2015)***who examined the effects of education and psychological counseling on anxiety, depression, and functional limitations in patients with myocardial infarction. The results of his study shows that the intervention did not significantly affect depressive symptoms.

This study shows that there were a highly significant difference between total mean scores of general health questionnaire of the study sample pre and post program. From the viewpoint of researcher this may be due to positive effect of the researcher program by using PEP. This result is similar to ***Valiee et al., (2016)*** who found a significant difference was observed between the mean overall QOL scores of the intervention group prior to and after the PEP intervention. Also this result was congruent with ***Bashiri et al., (2016)*** who found that the means of the overall GHQ scores and most of the GHQ subscales were significantly decreased post-test in the intervention group, so that the differences between the two groups were statistically significant in both the overall GHQ scores and in all of the subscales

V. Conclusion:

Psycho-education is a well-known intervention for psychiatric patients, but its use has been limited in other health conditions, such as coronary heart disease. The results of this study show that psycho-educational program is the key element for improvement of psychological status of patients with coronary heart disease.

Recommendations:

1- It is recommended that application of psycho-educational program for all patient with coronary heart disease
2- Similar interventions be integrated into routine cardiac care plans, and that PEP interventions be added to medical and nursing education curricula.
3- Further studies are suggested, with greater sample sizes and longer follow-up periods at different time-intervals.

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