

Effect of Educational Program for Patient's With Congestive Heart Failure on Their Health Status

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ABSTRACT

Background : The aim of this study is to assess the patients knowledge and evaluate the effect of an educational program on patient outcome as an indicator of health status.**Subject and Methods:** A quasi-experimental design was used to assess the patient knowledge regarding congestive heart failure and evaluate the effect of implementing an educational program on patient outcomes .The setting of the study was conducted in the cardiac care units in three selected governmental hospitals in Port Said city , El-Nasr Hospital, General Port Said Hospital and Al-Tadamon Health Insurance Hospital (The total sample size was 108 patients).Two tools was developed and used by the researcher for data collection. **Tool:** Congestive heart failure patients Questionnaire is divided into two parts. **Part (1):** This part included knowledge assessment regarding congestive heart failure and clinical data questionnaire as socio-demographic data and patient history and clinical data. **Part (2):** This part included educational program for patients with congestive heart failure. **Results:** The results revealed that there was a significant improvement in the patient's knowledge about definition, types, incidence, signs and symptom, patient belief about congestive heart failure, psych statues, in the first evaluation (after 1 month) and second evaluation (after 3 months).**Conclusion:** Educational program has a significant improvement on the patient's knowledge regarding congestive heart failure.

Key Words: *Congestive heart failure, educational program and health status.*

INTRODUCTION

Congestive heart failure (CHF) occurs when the heart muscle is not able to pump enough blood to satisfy the metabolic needs of the tissues. Additionally, heart failure may be due to a primary disease of the heart muscle which is called cardiomyopathy or secondary to disease which affects the heart muscle such as hypertension, coronary heart disease, or various diseases of the heart valves (*Amorim et al., 2013; Katz et al., 2015*). CHF is often associated with disability and is characterized by left ventricular dysfunction, reduced exercise tolerance, diminished quality of life, and shortened life expectancy (*McMurray et al., 2012*). As indicated by *Zill et al. (2011)* a total of 50% of all patients with CHF die within 5 years of diagnosis.

Congestive heart failure is a complex clinical syndrome in which the patient complains of shortness of breath, fatigue and abnormal heart function. Heart failure is not a diagnosis but it is produced by any disorder that places the heart under a chronically increased volume or pressure load that produces primary damage or an increased metabolic demand on the myocardium (*Pinkerman et al., 2013*).

Furthermore, congestive heart failure is a significant health problem for men and women. It is characterized by marked functional limitation and poor quality of life, so the patients find themselves in a new life situation in their environment, their family, work and society. They usually face many problems such as loss of some body functions, relationships with others, altered sexuality and change in life style (*Walker et al., 2014*).

Moser et al. (2012) mentioned that patients with congestive heart failure need to have information regarding their own self-care. This information should include all aspects of their illness and its treatment. Moreover, *Weber & Kelley (2014)*, indicated that global information needs of patient with congestive heart failure help patient achieve high level of wellness. Moreover, the information that patients need to receive should be related to symptoms, medications, weight monitoring, diet, oxygen therapy, activity and stress management.....etc.

Patient with congestive heart failure should be prepared for transition of care from hospital to home through discharge planning. An effective discharge planning process could be described as the construction for implementation of a planned program of continuing care, which meets patients' needs after discharge from hospital (*Urden et al., 2014; Jensen, 2015*). The practice nurse plays an important role for patients with CHF. Which assesses patients' information regarding his/her disease to modify treatment and guide the patients and their families to facilitate adaptations with heart failure (*Williams & Hopper, 2015*).

AIM OF STUDY:

The aim of this study is to assess the patients knowledge and evaluate the effect of an educational program on patient outcome as an indicator of health status.

SUBJECT AND METHODS:

A quasi-experimental design was used to assess the patient knowledge regarding congestive heart failure and evaluate the effect of educational program for patient with congestive heart failure .The subjects of the study was conducted in the cardiac care units in three selected governmental hospitals in Port Said city, El-Nasr Hospital, General Port Said Hospital and Al-Tadamon Health Insurance Hospital (The total sample size was 108 patients). Conceptual definition: Health status defend as a holistic concept that is determined by more than the presence or absence of any disease. It is often summarized by life expectancy or self-assessed health status, and more broadly includes measures of functioning, physical illness, and mental wellbeing (*Australian Institute of Health and Welfare ,2016*).

Both study and control groups filled out the questionnaires through structured interview that consist of three assessment before implement program as a pre -test and immediate at the end of the program as post 1 then after three month as follow up test or post 2. then the educational program were conducted only for the study group according to their disease stage, level of education and their free time for most patient the teaching sessions were scheduled in the afternoon that consist of four session. Each session was done every week for one month and lasted for 30-45 minutes depending on certain circumstances such as patients level or depth of discussion.

Inclusion Criteria:

1. Patients above 40 years of age both sex males and females.
2. Patients with a confirmed diagnosis of congestive heart failure for at least one year.

Exclusion Criteria:

- Patient inability to communicate due to poor general conditions and deafness hearing alteration.

Tools of Data Collection:**Part (I) Knowledge Assessment Regarding Congestive Heart Failure and Clinical Data Questionnaire:**

This questionnaire was developed by the researcher after a thorough review of literature, this tool is divided into two main parts.

- **Socio-demographic data:** such as age, gender, marital status, level of education, job type, caregiver, number of children, family members living with the patient, number of rooms, crowding index, monthly income sufficient for costs of treatment.
- **Patient history and clinical data:** such as types, diagnosis of CHF, onset of illness, time since start (years), concomitant disease, number of hospitals admission in the last year, signs and symptoms as, edema , complications that occurred , smoking,

exercise, laboratory investigations, vital signs, control of weight, diet, medication, and sexual relation, (*Abu Donia, 1977*).

A pilot study:

A pilot study was carried out on 10 % of the patients. The main purpose of the pilot study was to test the clarity, feasibility of the tools and whether it was understandable, and to determine the time needed to fill the tool. The tool was handed to participants to fill it in and collected by the researcher.

Educational Program:

The health education program was designed based on; several literature review and the findings of the baseline assessment of CHF patients' knowledge (*Helen & Sharon, 2008; Lakdizaji et al., 2013; Noghabi et al., 2013; Pinkerman et al., 2013*). The general objectives distributed on four sessions with each session having a set of specific objectives:

- **The first session's aim was to:** inform CHF patients about the anatomy and physiology of the heart.
- **The second session's aim was to:** definition of CHF ,risk factors, signs and symptoms .
- **The third session's aim was to:** control of possible complications,
- **The fourth session's aim was to:** cope with stress management and medical checkup or follow up.

Field work:

The program contents and the choice of teaching methods were based on level of education and needs whether individually or in groups. An educational booklet, brochures and videos on copy-right disk CD were prepared by the researcher to present information for patients in a simple way using simple language and illustrative pictures. It distributed to all patients at the proper time.

Field study was conducted from the beginning of June (2013) to the end of August (2014). Reliability was performed for the tool where Cronbach alpha equals 0.751.

Conceptual definition: Health statuses defend as a holistic concept that is determined by more than the presence or absence of any disease. It is often summarized by life expectancy or self-assessed health status, and more broadly includes measures of functioning, physical illness, and mental wellbeing (*Australian Institute of Health and Welfare, 2016*).

RESULTS:

Table (1): shows the distribution of socio-demographic characteristics of both study and control groups. None of the characteristics showed significant difference between both groups except type of work practiced by both groups ($p=0.001$), gender ($p=0.053$) and carer of family members ($P=0.029$).

Table (2): shows the Comparison between study and control groups as regards socio-economic conditions. Differences in socio-economic conditions of both groups were statistically significantly between both groups. The floor of housing in about half of the study group was at the ground level (40.7%) compared to the majority of the control group (79.6%) who lived in the second floor ($P=0.001$). Healthy home was available for half of the study group (50%) compared to the majority of the control group (85.2%); ($P=0.001$). Monthly income was significantly lower among the control group ($P=0.001$). The majority of the control group (85.2%) had income less than 300 LE compared to 64.8% of the study group who had income between 301 and 500 LE. Thus the majority of the control group (87%) had insufficient income compared to (51.9%) of the study group ($P=0.001$). Health insurance was offered for (61.1%) of the study group compared to only (14.8%) of the control group. The differences were statistically significant ($P=0.001$).

Table (3): reveals the distribution of knowledge about history of the disease among both studied patient and control groups. Knowledge about diagnosis was more encountered among the control group as compared to the study group ($P=0.001$). Knowledge about heart failure was more evident among study group as compared to the control group ($P=0.001$). Moreover, causes of heart failure were known to (37%) of the study group compared to (14.8%) of the control group ($P=0.008$).

Table (4): shows the medical history of diseases among the studied patient and control groups. All studied and control group patient suffered from hypertension. The majority of the control group suffered from myocardial infarction (77.8%) compared to (46.3%) among patient followed by angina pectoris (75.9%, 37% respectively) and severe anemia (66.7%, 20.4% respectively). All these differences were statistically significant.

Regarding onset of disease, the majority of studied- patient, had gradual onset of disease compared to all controls. The difference was statistically significant ($p=0.003$). The mean number of hospital admissions of both studied and control patient did not show significant difference (6.1 ± 5.62 , 5.9 ± 5.19 respectively), ($P=0.85$). Cause for admission was almost heart failure combined with other causes among studied patient (75.9%) and controls (66.7%). The difference was statistically significant ($p=0.001$).

Considering knowledge about avoiding symptoms, it was only available among 22.2% of studied patient and 13% of controls. Nearly similar percentages were found among those who did not have the knowledge (31.5%, 37% respectively).

Table (5): shows significant differences between the studied and control group regarding patients' problems as chest tightness at night, upstairs tachypnea, need for rest during physical activity and need for rest at a specific position. Sleep problems were more encountered among the control group (98.1%) as compared to the study group (79.6%). Furthermore, the control group reported shorter durations of sleep. Differences were statistically significant ($P=0.001$ respectively).

Changing pattern of sleep was equal among both groups (85.2%). The change of sleep encountered was in the form of decreased sleep among (82.6%) of study and (97.8%) of control group. Regarding effect of the disease on sexual life, it was revealed that no significant differences were found between both study and control groups as more than one third of each group reported that there was full interference on sexual life (35.2% and 44.4% respectively).

Table (6): shows the effect of the educational program on emotional state among the study and control group. It was revealed that anyone told about heart failure was not significant in the both group at all times of the evaluation. Moreover, the study group subjects had significantly lower percentage after 1st evaluation for increase anxiety by the disease, less affection on behavior and vision of life as compared to the control group at all times of evaluation.

Regarding the presence of a positive effect for the disease on life of the patient, it was found that it was less reported among the study group before the program while they showed increase in such beliefs after the program as compared to the control group.

No significant difference was found between study and controls regarding change of their life pattern completely after the illness as the majority of both groups confirmed such change in life pattern.

A significantly higher percentage of control group felt the diseases leads to social loneliness more than the study group ($P=0.001$). The study group who felt the diseases leads to social loneliness decreased after 1st evaluation of the program.

The majority of the control group felt anxious when they knew the diagnosis compared to significant lower percentage among the study group before and immediately after the program. Meanwhile, at 2nd evaluation after the program, it was found that a significantly higher percentage of the study group reported that they had decreased anxiety ($P=0.013$).

No statistically significant difference was found between study and control group, regarding belief afraid from disease complications ($p =495$). The study group had decreased percentage from (96.3%) before program to (94.4%), after 1st evaluation, again it increased to (96.3%) after 2nd evaluation. While in the control group did not change before or after the 1st and 2nd evaluation (100%).

Regarding the ability to concentrate and remember things, it was significantly higher among the control group as compared to the study group at all times. Again, a higher percentage of the study group was satisfied about their life, which increased after 1st evaluation of the program as compared to the control group.

Table (7): shows the effect of the educational program on opinion among study and control groups. Regarding patient belief about heart failure, 44.4% of the study group thought that heart failure disables patient completely compared to none of the control group before the program. After the program, more than half of the study group (57.4%, 74.1 respectively) thought that heart failure is inability of heart to pump enough blood compared to (25.9%) which is statistically significant ($P=0.001$).

Regarding the most important factor affecting the disease, the majority of the study group thought that nothing could affect the disease (37%) or all presented factors except weakness of pulse rate (35.2%) before the program. Meanwhile, half of the control group (51.9%) thought that the most important factor is psychic rest. After the program, nearly all the study group (92.6%) thought that all factors could affect the disease except weakness of pulse compared to 42.6% among the control group. On second evaluation after the program, 83.3% of the study group thought that all factors would affect the disease compared to 40.7% of the control group. All differences were statistically significant ($P=0.001$). The most difficult disease as being reported by the study group before the program was heart disease (68.5%) compared to 46.3% among the control group.

Similarly after the program, the highest percentage of study group (81.5% and 75.9%) believed that heart disease is the most difficult compared to significantly lower percentage among the control group (48.1%). All differences were statistically significant ($P=0.001$).

Table (1): Distribution of socio-demographic characteristics of the study and control group

Socio-demographic characteristics	Study group (n=54)	Control group (n=54)	Total (n=108)	P value
Gender				
Male	25(46.3%)	35(64.8%)	60(55.6%)	0.053*
Female	29(53.7%)	19(35.2%)	48(44.4%)	
Age (years)				
Mean±SD	57.62±7.03	56.24±8.58	56.93±7.84	0.36
Social state				
Single	4 (7.4%)	6 (11.1%)	10 (9.3%)	0.29
Married	38 (70.4%)	33 (61.1%)	71 (65.7%)	
Widow	12 (22.2%)	12 (22.2%)	24 (22.2%)	
Divorced	0 (0.0%)	3 (5.6%)	3 (2.8%)	
Educational level				
Illiterate	13 (24.1%)	19 (35.2%)	32 (29.6%)	0.065
Read and write	22 (40.7%)	25 (46.3%)	47 (43.5%)	
Prep school	2 (3.7%)	4 (7.4%)	6 (5.6%)	
Secondary or above	17 (31.5%)	6 (11.1%)	23 (21.3%)	
Employment				
No	23(42.6%)	15 (27.8%)	38 (35.2%)	0.11
Yes	31 (57.4%)	39 (72.2%)	70 (64.8%)	
Type of work	(n=31)	(n=39)	(n=70)	
Physical	21 (67.7%)	38 (97.4%)	59 (84.3%)	0.001*
Mental	10 (32.3%)	1 (2.6%)	11 (15.7%)	
Carer				
Family	32 (59.3%)	39 (72.2%)	71 (65.7%)	0.029*
One of sons	13 (24.1%)	13 (24.1%)	26 (24.1%)	
Brother	1 (1.9%)	2 (3.7%)	3 (2.8%)	
No one	8 (14.8%)	0 (0.0%)	8 (7.4%)	
Residence				
Special	43 (79.6%)	47 (87.0%)	90 (83.3%)	0.3
with others	11 (20.4%)	7 (13.0%)	18 (16.7%)	

*significant level considered- $P \leq 0.05$

Table (2): Comparison between study and control groups as regards socio-economic conditions

Socio-economic conditions	Study group (n=54)	Control group (n=54)	Total (n=108)	P value
Floor of housing				
At the ground	22 (40.7%)	7 (13.0%)	29 (26.9%)	0.001*
First	6 (11.1%)	2 (3.7%)	8 (7.4%)	
Second	17 (31.5%)	43 (79.6%)	60 (55.6%)	
Third	5 (9.3%)	0 (0.0%)	5 (4.6%)	
Others	4 (7.4%)	2 (3.7%)	6 (5.6%)	
Elevator				
Present	4 (7.4%)	2 (3.7%)	6 (5.6%)	0.4
Absent	50 (92.6%)	52 (96.3%)	102 (94.4%)	
Healthy home				
Yes	27 (50.0%)	46 (85.2%)	73 (67.6%)	0.001*
No	27 (50.0%)	8 (14.8%)	35 (32.4%)	
Monthly income				
Less than 300	17 (31.5%)	46 (85.2%)	63 (58.3%)	0.001*
From 301-500	35 (64.8%)	8 (14.8%)	43 (39.8%)	
More than 500	2 (3.7%)	0 (0.0%)	2 (1.9%)	
Sufficiency of income				
Yes	13 (24.1%)	7 (13.0%)	20 (18.5%)	0.001*
No	28 (51.9%)	47 (87.0%)	75 (69.4%)	
Somewhat	13 (24.1%)	0 (0.0%)	13 (12.0%)	
Health insurance				
Yes	33 (61.1%)	8 (14.8%)	41 (38.0%)	0.001*
No	21 (38.9%)	46 (85.2%)	67 (62.0%)	

*significant level considered- $P \leq 0.05$ **Table (3):** Knowledge about history of the disease in study and control groups

Knowledge about disease history		Study group (n=54)	Control group (n=54)	Total (n=108)	P value
Know diagnosis of the disease	Yes	40 (74.1%)	52 (96.3%)	92 (85.2%)	0.001*
	No	14 (25.9%)	2 (3.7%)	16 (14.8%)	
Know heart failure	Yes	36 (66.7%)	16 (29.6%)	52 (48.1%)	0.001*
	No	18 (33.3%)	38 (70.4%)	56 (51.9%)	
Cause of heart failure	Yes	20 (37.0%)	8 (14.8%)	28 (25.9%)	0.008*
	No	34 (63.0%)	46 (85.2%)	80 (74.1%)	
Type of heart failure	Yes	10 (18.5%)	1 (1.9%)	11 (10.2%)	0.004*
	No	44 (81.5%)	53 (98.1%)	97 (89.8%)	

*significant level considered- $P \leq 0.05$

Table (4): Medical history of the disease among the study and control groups

Medical history		Study group (n=54)	Control group (n=54)	Total (n=108)	P value
Previous disease	Hypertension	54 (100%)	54 (100%)	108 (100%)	-
	MI	25 (46.3%)	42 (77.8%)	67 (62.0%)	0.001*
	Rheumatic heart	7 (13.0%)	2 (3.7%)	9 (8.3%)	0.08
	Angina pectoris	20 (37.0%)	41 (75.9%)	61 (56.5%)	0.001*
	Valvular stenosis	7 (13.0%)	0 (0.0%)	7 (6.5%)	0.019*
	Severe anemia	11 (20.4%)	36 (66.7%)	47 (43.5%)	0.001*
	Hyperthyroidism	4 (7.4%)	7 (13.0%)	11 (10.2%)	0.34
	Bronchial asthma	13 (24.1%)	5 (9.3%)	18 (16.7%)	0.03*
Diagnosis	Sudden	8 (14.8%)	0 (0.0%)	8 (7.4%)	0.003*
	Gradual	46 (85.2%)	54 (100.0%)	100 (92.6%)	
Duration	One year	2 (3.7%)	0 (0.0%)	2 (1.9%)	0.15
	More than one year	52 (96.3%)	54 (100.0%)	106 (98.1%)	
Other diseases	Diabetes	2 (3.7%)	0 (0.0%)	2 (1.9%)	0.021*
	Hypertension	5 (9.3%)	0 (0.0%)	5 (4.6%)	
	DM and HTN	46 (85.2%)	49 (90.7%)	95 (88.0%)	
	Others	1 (1.9%)	5 (9.3%)	6 (5.6%)	
Admission in last year (mean±SD)		6.09±5.62	5.90±5.19	6.0±5.38	0.85
Duration of admission	One week	22 (40.7%)	7 (13.0%)	29 (26.9%)	0.001*
	Two weeks	14 (25.9%)	39 (72.2%)	53 (49.1%)	
	Three weeks	7 (13.0%)	1 (1.9%)	8 (7.4%)	
	One month	7 (13.0%)	5 (9.3%)	12 (11.1%)	
	Others (more than one month)	4 (7.4%)	2 (3.7%)	6 (5.6%)	
Cause of admission	HF	12 (22.2%)	0 (0.0%)	12 (11.1%)	0.001*
	Others	1 (1.9%)	18 (33.3%)	19 (17.6%)	
	HF and others	41 (75.9%)	36 (66.7%)	77 (71.3%)	
Visit doctor	At the same week	31 (57.4%)	29 (53.7%)	60 (55.6%)	0.10
	At the same month	18 (33.3%)	25 (46.3%)	43 (39.8%)	
	After 3 months	3 (5.6%)	0 (0.0%)	3 (2.8%)	
	After 6 months	2 (3.7%)	0 (0.0%)	2 (1.9%)	
Know how to avoid symptoms	Yes	12 (22.2%)	7 (13.0%)	19 (17.6%)	0.44
	No	17 (31.5%)	20 (37.0%)	37 (34.3%)	
	Somewhat	25 (46.3%)	27 (50.0%)	52 (48.1%)	

N.B. No cases reported previous congenital heart disease or chronic chest disease

**significant level considered- $P \leq 0.05$*

Table (5): Comparison between study and control groups as regards data of patient's problems

Patients needs		Study group (n=54)	Control group (n=54)	Total (n=108)	P value
Chest tightness at effort	Yes	39 (72.2%)	35 (64.8%)	74 (68.5%)	0.407
	No	15 (27.8%)	19(35.2%)	34(31.5%)	
Anxiety on leaning	Yes	42 (77.8%)	35 (64.8%)	77(71.3%)	0.136
	No	12 (22.2%)	19(35.2%)	31(28.7%)	
Chest tightness at night	Yes	50 (92.6%)	36 (66.7%)	86 (79.6%)	0.001*
	No	4 (7.4%)	18 (33.3%)	22 (20.4%)	
Upstairs tachypnea	Yes	51 (94.4%)	35 (64.8%)	86 (79.6%)	0.001*
	No	3 (5.6%)	19 (35.2%)	22 (20.4%)	
Rest during physical activity	Yes	50 (92.6%)	35 (64.8%)	85 (78.2%)	0.001*
	No	4 (7.4%)	19 (35.2%)	23 (21.3%)	
Rest at a specific position	Yes	47 (87.0%)	8 (14.8%)	55 (50.9%)	0.001*
	No	7 (13.0%)	46 (85.2%)	53 (49.1%)	
Complications of prolonged bed rest	Muscle weakness	30 (55.6%)	6 (11.1%)	36 (33.3%)	0.001*
	Bed sores	30 (55.6%)	13 (24.1%)	43 (39.8%)	0.001*
	Pneumonia	4 (7.4%)	0 (0.0%)	4 (3.7%)	0.12
	DVT	13 (24.1%)	16 (29.6%)	29 (26.9%)	0.51
	Arthrodesis	0 (0.0%)	39 (72.2%)	39 (36.1%)	0.001*
	Constipation	29 (53.7%)	3 (5.6%)	32 (29.6%)	0.001*
	Urine retention	17 (31.5%)	1 (1.9%)	18 (16.7%)	0.001*
	Dyspnea	18 (33.3%)	12 (22.2%)	30 (27.8%)	0.19
Sleep problems	Yes	43 (79.6%)	53 (98.1%)	96 (88.9%)	0.002*
	No	11 (20.4%)	1 (1.9%)	12 (11.1%)	
Duration of sleep	6- 8 hours	14 (25.9%)	19 (35.2%)	33 (30.6%)	0.001*
	4- 6 hours	25 (46.3%)	7 (13.0%)	32 (29.6%)	
	Less than 4 hours	15 (27.8%)	28 (51.9%)	43 (39.8%)	
Change of sleep pattern	Yes	46 (85.2%)	46 (85.2%)	92 (85.2%)	1.0
	No	22 (14.8%)	22 (14.8%)	44 (14.8%)	
Type of change	Increased	8 (17.4%)	1 (2.2%)	9 (9.8%)	0.064
	Decreased	38 (82.6%)	45 (97.8%)	83 (90.2%)	
Difficulty in start night sleep	Yes	50 (92.6%)	54 (100%)	104(96.3%)	0.118
	No	4 (7.4%)	0 (0.0%)	4 (3.7%)	
Getting up at night	Yes	40 (74.1%)	53 (98.1%)	93 (86.1%)	0.001*
	No	14 (25.9%)	1 (1.9%)	15 (13.9%)	
Effect of disease on sexual life	No at all	3 (5.6%)	0 (0.0%)	3 (2.8%)	0.29
	Somewhat	18 (33.3%)	18 (33.3%)	36 (33.3%)	
	Full interference	19 (35.2%)	24 (44.4%)	43 (39.8%)	
	Not answered	14 (25.9%)	12 (22.2%)	26 (24.1%)	

Table (5)): Comparison between study and control groups as regards data of patient's problems (cont)

Patients needs		Study group (n=54)	Control group (n=54)	Total (n=108)	P value
Sings of heart failure during sexual activity					
Tachycardia or tachpnea	Yes	40 (100%)	42 (100%)	82 (100%)	-NA-
	No	0 (0%)	0 (0%)	0 (0%)	
Palpitations for 15 minutes	Yes	32 (80%)	42 (100%)	74(90.2%)	0.002*
	No	8 (20%)	0 (0.0%)	8 (9.8%)	
Chest pain	Yes	31(77.5%)	42(100%)	73 (89%)	0.001*
	No	9(22.5%)	0 (0.0%)	9 (11%)	
Difficult sleeping after	Yes	35 (87.5%)	42 (100%)	77 (93.9%)	0.024*
	No	5 (12.5%)	0 (0.0%)	5 (6.1%)	
Severe fatigue After it	Yes	36 (90%)	42 (100%)	78 (95.1%)	0.053
	No	4 (10%)	0 (0.0%)	4 (4.9%)	
Medical progress					
Prognosis	Satisfied	9 (16.7%)	18 (33.3%)	27 (25%)	0.046*
	Unsatisfied	45 (83.3%)	36 (66.7%)	81 (75%)	
Change in prognosis	Yes	53 (98.1%)	54 (100%)	107 (99.1%)	1.0
	No	1 (1.9%)	0 (0.0%)	1 (0.9%)	

NA: Not Applicable

**significant level considered- $P \leq 0.05$*

Table (6): Effect of the educational program on psychic (or emotional) state among study and control groups at three phases: before, at first and second evaluations

Psychic state	Before program				P value	At First evaluation				P Value	At Second evaluation				P value
	Study group (n=54)		Control group (n=54)			Study group (n=54)		Control group (n=54)			Study group (n=54)		Control group (n=54)		
	No.	%	No.	%		No.	%	No.	%		No.	%	No.	%	
Did anyone speak to you about heart failure															
Yes	28	51.9	37	68.5	0.077	40	74.1	44	81.5	0.355	44	81.5	44	81.5	1.0
No	26	48.1	17	31.5		14	25.9	10	18.5		10	18.5	10	18.5	
Is your anxiety increased due to disease															
Yes	45	83.4	54	100	0.003*	38	70.4	54	100	0.001*	47	87	54	100	0.013*
No	9	16.7	0	0		16	29.6	0	0		7	13	0	0	
Do you anxious															
Yes	51	94.4	53	98.1	0.618	42	77.7	48	88.9	0.121	44	81.4	48	88.9	0.278
No	3	5.6	1	1.9		12	22.2	6	11.1		10	18.5	6	11.1	
Dose the disease affecting your behavior and your vision to life															
Yes	48	88.9	53	98.1	0.112	48	88.9	53	98.1	0.113	48	88.9	53	98.1	0.113
No	6	11.1	1	1.9		6	11.1	1	1.9		6	11.1	1	1.9	
The disease affecting your life positively															
Yes	26	48.2	45	83.3	0.001*	33	61.1	52	96.3	0.001*	39	72.2	47	87	0.056
No	28	51.9	9	16.7		21	38.9	2	3.7		15	27.8	7	13	
The disease affecting your personal relations															
Yes	44	81.5	47	87	0.428	40	74	47	87	0.089	40	74	47	87.1	0.089
No	10	18.5	7	13		14	25.9	7	13		14	25.9	7	13	
Did your life pattern changed completely															
Yes	54	100	54	100	-NA-	53	98.1	54	100	1.0	51	94.4	53	98.2	0.618
No	0	0	0	0		1	1.9	0	0		3	5.6	1	1.9	
Is support enough															
Yes	27	50	27	50	1.0	29	53.7	27	50	0.7	32	59.3	28	51.9	0.438
No	27	50	27	50		25	46.3	27	50		22	40.7	26	48.1	

NA: Not applicable

Table (6) (cont): Effect of the educational program on psychic (or emotional) state among study and control groups at three phases: before, at first and second evaluations (*cont*)

Psychic state	Before program				At First evaluation				At Second evaluation						
	Study group (n=54)		Control group (n=54)		P value	Study group (n=54)		Control group (n=54)		P value	Study group (n=54)		Control group (n=54)		P value
	No.	%	No.	%		No.	%	No.	%		No.	%	No.	%	
Is the disease leading to social loneliness															
Yes	45	83.3	54	100	0.003*	37	68.5	54	100	0.001*	44	81.4	54	100	0.001*
No	9	16.7	0	0		17	31.5	0	0		10	18.5	0	0	
Are you feeling anxious when you know the diagnosis															
Yes	52	96.3	54	100	0.495	51	94.5	54	100	0.242	47	87	54	100	0.013*
No	2	3.7	0	0		3	5.6	0	0		7	13	0	0	
Are you afraid from disease complications															
Yes	52	96.3	54	100	0.495	51	94.4	54	100	0.242	52	96.3	54	100	0.495
No	2	3.7	0	0		3	5.6	0	0		2	3.7	0	0	
Is the disease affecting your quality of life															
Yes	52	96.3	54	100	0.495	48	88.9	54	100	0.027*	52	96.3	54	100	0.495
No	2	3.7	0	0		6	11.1	0	0		2	3.7	0	0	
Are you able to concentrate and remember things															
Yes	43	79.6	54	100	0.001*	51	94.4	54	100	0.242	47	87	54	100	0.013*
No	11	20.4	0	0		3	5.6	0	0		7	13	0	0	
Are you satisfied with your life															
Yes	32	59.3	41	75.9	0.064	50	92.6	44	81.5	0.086	46	85.2	44	81.5	0.606
No	22	40.7	13	24.1		4	7.4	10	18.5		8	14.8	10	18.5	
Do religious activities support you regarding your disease															
Yes	53	98.1	54	100	1.0	54	100	54	100	-NA-	54	100	54	100	-NA-
No	1	1.9	0	0		0	0	0	0		0	0	0	0	
Do you feel there is an aim for your life															
Yes	38	70.4	31	57.4	0.161	53	98.1	33	61.1	0.001*	52	96.3	33	61.1	0.001*
No	16	29.6	23	42.6		1	1.9	21	38.9		2	3.7	21	38.9	

NA: Not applicable

Table (7): Effect of the educational program on opinion among study and control groups at three phases: before, at first and second evaluations.

Opinion	Before program			At First evaluation			At Second evaluation				
	Study group (n=54)		P value	Study group (n=54)		P value	Study group (n=54)		P value		
	No.	%		No.	%		No.	%			
Patient belief about heart failure											
Can be healed	4	7.4	0.001*	1	1.9	0.001*	0	0.0	0.001*		
Disease disabling patients completely	24	44.4		18	33.3		3	5.6			
Group of symptoms can be controlled	4	7.4		7	13.0		0	0.0			
Stop heart beating	10	18.5		13	24.1		1	1.9			
Week and irregular heart beats	6	11.1		5	9.3		-	-			
Weak heart leads to edema	0	0.0		11	20.4		0	0.0			
All	6	11.1		0	0.0		-	-			
Inability of heart to pump enough blood	-	-		-	-		31	57.4		14	25.9
The most important factor affecting your disease											
Balanced programs of rest and activity	9	16.7	0.001*	2	3.7	0.001*	5	9.3	0.001*		
Psychic rest	0	0.0		28	51.9		0	0.0		28	51.9
Drugs	4	7.4		0	0.0		-	-		2	3.7
Nothing	20	37.0		10	18.5		0	0.0		3	5.6
All except weakness of pulse rate	19	35.2		16	29.6		50	92.6		23	42.6
All of the above	2	3.7		0	0.0		-	-		45	83.3
What are the difficulties in your opinion											
Diabetes	3	5.6	0.001*	3	5.6	0.001*	3	5.6	0.001*		
Kidney disease	4	7.4		0	0.0		-	-		-	-
Heart disease	37	68.5		25	46.3		44	81.5		26	48.1
All of the above	10	18.5		11	20.4		7	13.0		10	18.5

DISCUSSION:

Congestive heart failure is a long-term illness that is characterized by multiple problems for patients and their families. Therefore, it is very important that patients know information to cope with their problems as following the prescribed therapeutic regimen which includes life style modifications related to diet, activity and medication (*Lakdizaji et al., 2013*). Recognition and treatment of problems are priorities of care for patients with chronic illness such as congestive heart failure (*Richman, 2010*).

Knopp (2009); Delaney et al. (2011) mentioned that nurses can provide assistance and information to patients and their families while in hospital by discussing with them some of the common problems which patients may experience once they return home. It is important as well for nurses to be aware of the feelings and needs of the spouse or carer. According to *Thompson (2010)*, the importance of individualizing a plan of care before discharge should include home care for provision of long-term education and counseling.

The results of the present study revealed that age of most of the patients in both control and study groups was 60 years old and more. This result is supported by *Karlsson (2011)*, who found that the congestive heart failure is more common in aged persons over 65 year. Moreover, *American Heart Society (2012); Cardiology Channel (2012)*, found that congestive heart failure is more common in persons aged between 40 to 55 years old, while *Morgan & Naka (2013)* reported that, age and gender are major factors in developing heart disease. Additionally, prevalence of CHF is increased in older people particularly after 45 years of age.

In relation to gender, it was found that the majority of the studied patients in both control and study groups were male patients. This fact may be explained by increase of smoking habit among men, in addition to occupational factor that need increased physical work. This result was explained by *Lakdizaji et al. (2013)* who found that during a study examined data from general practices of 2.1 million patients, age related prevalence of heart failure was 9.7 per 1.000 males and 8.2 per 1.000 females.

Regarding the marital status, it was found that majority of studied patients in both control and study groups were married, this finding goes in the line with *Elsayed (2004); Reddy et al. (2010)*, who found that married patients represented the higher percentage compared to single, divorced and widow patients. So, stress of the family obligation could be a contributing factor to develop CHF.

In relation to educational level, the current study revealed that less than half of the subjects were able to read and write in each group. Additionally, the majority of the study subjects were laborers, with limited education. Similarly, *Moore et al. (2014)*, reported that educational level is considered a personal issue which influences the individual ability to cope with the disease. While, *Lakdizaji et al. (2013)* reported that the level of education is important for CHF patients to perceive information.

Regarding family income, more than half of the subjects in both control and study groups earned less than 300 LE as monthly income. Also more than half them had insufficient income to cover the cost of treatment. However, less than half of the subjects were been supported by health insurance. *Coyle & Berger (2013)*, stated that lower socio-economic status and low income are associated with increased occurrence of chronic heart disease in both men and women probably due in part to the higher prevalence of CHF risk factors.

Regarding knowledge about history of disease, the majority of the subjects involved in both study and control group had incomplete knowledge about their own diagnosis, which includes definition, causes, types and complications of CHF. Such result in supported by *Khan (2006)*; *Gerdes & Lorenz (2013)* found that the majority of patients with CHF were concerned about causes and manifestations while only a minority were concerned about diagnosis, prevention and complications of CHF. While *Colet et al. (2014)*, stated that, only a small portion of the study sample was able to correctly answer CHF knowledge questions that entailed prevention of the disease.

All the studied subjects in both groups suffered from chronic disease such as hypertension, diabetes, myocardial infarction, angina and/or anemia. Regarding number of comorbid diseases, it was found that the majority of the patients were hypertensive and diabetic while more than half of the patients had myocardial infarction. This finding is also congruent with what was reported by *Henein (2010)* who revealed that CHF results from excessive strain on the heart, as hypertension increases cardiac workload.

The present study showed that the majority of the subjects in both study and control groups suffered from gradual onset of shortness of breath that worsened in response to a variety of activities. Moreover , patients had moderate dyspnea in response to light activities (e.g., making a bed or walking across the room) *Perez et al. (2014)*, found that, "effort" is the precipitating factor number one for dyspnea in CHF patients, followed by gradually progressive fatigue.

In relation to history of previous hospital admission, it was found that the majority of the subjects in the study and control group had history of previous hospital admissions. Less than half of patients were admitted to the hospital for two weeks each year. This may be due to non compliance with the treatment regimen . This result was supported by *Pang (2011)*; *Blecker et al., (2014)*, who stated that, improved pharmaceutical management, close follow-up, and patient education about self-management had resulted in reduced hospital admission. Also when the studied patients had telephone contact to medical team and were referred to the general practitioner for further help, heart failure hospitalization was reduced by 25% but did not reduce all causes of hospital admissions or mortality.

Findings of the present study showed that the majority of the studied subjects in both study and control groups were suffering from fatigue. The patients described fatigue as an intermittent problem that affected their body and their ability to think. This result was supported by *Moore et al. (2014)*; *Perez et al. (2014)* who conducted an interventional study on 542 patients with CHF in UK General Hospital. They reported that among participants who experienced fatigue daily, factors contributing to fatigue were identified as, being female, being staged according to New York Heart Association as class III or IV, having symptoms of depression and/or having two or more comorbidities. Interviews identified other symptoms, including chest pain, nausea, sleep disruption, and confusion. The authors added that nurses can help the patients to plan their activities so that they can rest before any anticipated outing.

The present study indicated that the majority of the subjects in both groups complained from dyspnea as the most common reason for which they sought medical care. *Butler (2012)*, stated that dyspnea is the single most important factor contributing to functional difficulties in health clinics visits among CHF patients. Patients described their shortness of breath as “fullness that comes up through the neck”.

The current study showed that the majority of the subjects in both groups were suffering from pain, especially chest pain, which affected their physical and psychological status. The patients reported that they are able to learn to differentiate types of chest pain, which was consistent with the results of *Damjanov (2012)* who found that, patients reported troubling sensations when lying on their left sides. They described sensations of hearing their heart beat and feeling it pounding. Most of the patients who reported these sensations were so problematic that they were unable to sleep on their left side.

The present study indicate the that majority of the subjects in the study and control group combined of sleep disturbance, mostly due to shortening of breath, chest pain and/or cough. This result is supported by *Goldberg (2010)*, who reported that, the consequence of disturbed sleep could be daytime sleepiness, which can affect negatively all dimensions of quality of life. In response to difficult sleeping, patients used distracting thinking through reading, watching television, and drinking herbal tea. They took sedative and antidepressants to improve sleep. The study group had higher knowledge about how to regulate sleep and rest. The patients need longer time in bed and have the worst sleep quality .Such result is consistent with *Eltahry (2008)*, who found that sleep affects all aspects of quality of life, including general health, physical functioning, cognitive functioning, daily activities, and work performance. Sleep disturbance has a profound effect on physical functioning, and psychological status in CHF patients.

The result of the present study showed that the majority of the subjects in the study and control patients illness had disturbed sexual life, which is in agreement with

Polling (2013); Mark et al. (2014), who found that the patients with congestive heart failure had specific factors that enhance risk for sexual dysfunction, such as low cardiac output and use of drugs with vasodilator effect. Sexual dysfunction can negatively affect interpersonal relationship and self-esteem, with significant impact on the quality of life. The studied patients had sexual problems mainly in the form of dyspnea, fatigue and tachycardia which occur during sexual intercourse while others complained from sexual inability. This finding goes in line with **Thompson (2012)**, who found that the majority of his/her study subjects had lost sexual activities or had sexual performance problems. These findings also were supported by **McGee (2012)** who stated that symptoms of CHF influence sexual performance. Sexual performance is not only influenced by shortness of breath and fatigue but also by anxiety accompanying physical activities.

The present study indicated that the study group subjects had significantly higher level of anxiety about the disease, lower sense of less affection on behavior and vision to life as compared to the control group at all timings of evaluation. A significantly higher percentage of the study group was afraid from disease complications compared to the control group before and immediately after the program. At second evaluation after the program, such difference disappeared between both groups as such fear decreased among the study group, which could be explained by better adaptation and acceptance for the disease. Moreover, patients gained a sense of power in controlling the situation through reassurance, encouragement, talking to a close person about their worries and avoiding over thinking about their own illness, These findings are consistent with those of **Jenner et al. (2009); Lefteriotis (2013)** who studied the strategies used by CHF patients to control psychological problems, they found that, using the following strategies: being optimistic and praying when upset, sense of security and privacy, accepting meanwhile strategy enjoyment was not reported at all.

The current study revealed a highly statistically significant difference between the control and study group regarding patients beliefs about heart failure. Among the study group before program the patients believed that it is a disabling disease that affects patients completely, mean while at the immediate, and post intervention assessments, the patients corrected their answers as inability of heart to pump enough blood which was among the study than control group. The patients had lack of information about the disease, factors affecting the disease, psychological issues, physical activity, work, rest/sleep, sexual life, treatment and health instructions. It is mandatory that patients receive appropriate information to meet their needs, right of self-determination and to make meaningful choices. This result was supported by **Andrietta et al. (2011); Albert (2013)**, who found that the patients were capable of making decisions provided they have proper information. Prerequisite to get information and counseling is properly functioning communication between health care and patients.

In conclusion, nurses play important role to meet patient's information needs through different methods. Health education should be accustomed according to patient's condition, level of education, occupation, and socioeconomic condition. Indeed there is a need for continuing care of the CHF patient's after discharge. This was supported by *Karen (2009)*, who showed that the requirements of a good system of follow-up such as monitoring of patient symptoms, medication reviews, support in life style change and the provision of help if necessary. The patients must receive care and emotional support from their families. This reason comes in accordance with a study conducted by *Clark et al. (2009)*, who stated that among the chronically ill, positive associations have been shown between information, life satisfaction and social contact.

CONCLUSION:

Based on study findings, it can be concluded that:

Educational program has a significant improvement on the patient's knowledge regarding congestive heart failure

RECOMMENDATIONS:

Patients and their families should be educated about CHF, weight controlling and regular weight checking, decrease heart effort, prevention of infectious disease, physical activity, deep respiration exercise, avoid carrying heavy objects, regular checking of medical investigations, disease affects work and rest periods between activity, stress management and early warning signs during sexual relation .Developing the patient's information through using patients education booklet, a HF video, and written information sheet that the patients may take home each time they are seen in the hospital or clinic, also incorporating color picture flash cards of commonly used heart failure medication into initial and follow up teaching to assist patients in identifying medications and dosages. Specialty nursing programs to prepare nurses in different specialties to ensure high quality of information and care provided to patient. Replication of the current study on a large probability sample from different geographical areas to achieve more generalized results.

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تأثير البرنامج التعليمي لمرضى هبوط القلب وأثره على الحالة الصحية

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الخلاصة

الدراسة الحالية دراسة شبة تجريبية هدفها تقييم تأثير البرنامج التعليمي علي معلومات مرضى هبوط القلب. وشملت عينة البحث (108) مريض بمستشفى بورسعيد العام و النصر و التضامن، وقد تم تجميع البيانات عن طريق استخدام استمارة استبيان للمرضى لتقييم معلوماتهم النظرية عن مرض هبوط القلب وتم تجميع الاستمارات قبل البدء في البرنامج وبعد تنفيذ البرنامج مباشرة ثم بعد ثلاث شهور. وقد أسفرت نتائج البحث علي وجود تحسن واضح في معلومات المرضى بعد تنفيذ البرنامج مباشرة. بناء على نتائج الدراسة أوصى بأن يتم عمل دراسة لتقييم الحالة الوظيفية لمرضى هبوط القلب أثناء دخولهم المستشفى وأثناء خروجهم لمعرفة التغيير في حالتهم الوظيفية . تطبيق هذه الدراسة علي نطاق عينة أكبر لتحقيق التعميم علي مدي أوسع في العلاج والرعاية الصحية .

الكلمات المرشدة : هبوط القلب ، برنامج تثقيفي ، الدور التمريضي .