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Awareness of the Patients about the Symptoms of Heart Failure and Length of Delay in Seeking Medical Care in Sudan Heart Center (SHC)

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ABSTRACT

Background: Heart Failure is a common clinical syndrome resulting from cardiac disease. It is recognized by a constellation of symptoms and signs due to a failing heart, including dyspnea, raspy breathing/wheezing, persistent coughing, blood tinged sputum, weight gain due to fluid retention, sleeplessness and fatigue. It results in high levels of ill-health, disability and mortality, and is a heavy burden on health services [1]. **Objective:** The aim of this study is to determine the awareness of the patients about heart failure symptoms & length of delay in seeking medical care, from November 1st 2015 to January 31st 2016. **Method:** This is a descriptive, cross-sectional facility-based study, conducted at the SUDAN HEART CENTER (SHC), Khartoum, Sudan. Data was collected mainly from patients diagnosed with heart failure using checklist as a data collection technique. Data was analyzed using a computer statistical programs statistical package of social sciences (SPSS). **Results:** The sample consisted of 100 patients, 47% males and 53% females. 7% of the patients were at age between 18-40 years, 37% aged between 41-63 years and 56% aged more than 63 years. 90% of these patients are aware about the symptoms especially exertional dyspnea (71.1%). Despite the cardioprotective effect of estrogen, women were more exposed to incidence of heart failure than men. 95% of the patients seek medical care after experience the symptoms. However, their pre-hospital delay time is days (68.4%). **Conclusion:** Patients in Sudan Heart Center are aware about the symptoms of heart failure & most of them seek medical care after days of the symptoms.

INTRODUCTION

Heart failure (HF) is a complex syndrome that can result from any structural or functional cardiac disorder that impairs the ability of the heart to function as a pump to support a physiological circulation [2]. It is an imprecise term used to describe the state that develops when the heart cannot maintain an adequate cardiac output or can do so only at the expense of an elevated filling pressure. In the mildest forms of heart failure, cardiac output is adequate at rest and becomes inadequate only when the metabolic demand increases during exercise or some other forms of stress. Almost all forms of heart disease can lead to heart failure and it is important to appreciate that, like anemia, the term refers to a clinical syndrome rather than a specific diagnosis.

The prognosis of HF has improved over the past 10 years, but the mortality rate is still high with approximately 50% of patients dead at 5 years [3].

Clinical Features:

The clinical picture depends on the nature of the underlying heart disease, the type of heart failure that it has evoked, and the neural and endocrine changes that have developed. A low cardiac output causes fatigue, listlessness and a poor effort tolerance; the peripheries are cold and the blood pressure is low. To maintain perfusion of vital organs blood flow may be diverted away from skeletal muscle and this may contribute to symptoms of fatigue. Poor renal perfusion may lead to oliguria and uremia. Pulmonary edema due to left heart failure may present with breathlessness, orthopnea, paroxysmal nocturnal dyspnea and inspiratory crepitations over the lung bases. The chest radiograph shows characteristic abnormalities and is usually a more sensitive indicator of pulmonary venous congestion than the physical signs [4].

In contrast, right heart failure produces a high jugular venous pressure, with hepatic congestion and dependent peripheral edema. In ambulant patients, the edema affects the ankles, whereas in bed-bound patients it collects around the thighs and sacrum. Massive accumulation of fluid may cause ascites or pleural effusion.

Chronic heart failure is sometimes associated with marked weight loss (cardiac cachexia) caused by a combination of anorexia and impaired absorption due to gastrointestinal congestion; poor tissue perfusion due to a low cardiac output; and skeletal muscle atrophy due to immobility. Increased circulating levels of cytokine tumor necrosis factor have been found in patients with cardiac cachexia [5].

Drug management:

Diuretics: These act by promoting the renal excretion of salt and water by blocking tubular reabsorption of sodium and chloride. Loop diuretics (e.g. furosemide and bumetanide) and thiazide diuretics (e.g. bendroflumethiazide, hydrochlorothiazide) should be given in patients with fluid overload. In severe heart failure patients, the combination of a loop and thiazide diuretic may be required. Serum electrolytes and renal function must be monitored regularly (risk of hypokalemia and hypomagnesemia) [6].

Angiotensin-converting enzyme inhibitors (ACEI): ACEI benefit patients with asymptomatic heart failure following myocardial infarction.

Thus ACEI improves survival in patients in all functional classes and are recommended in all patients at risk of developing heart failure. The main adverse effects of ACEI are cough, hypotension, hyperkalemia and renal dysfunction. The contraindications to their use include renal artery stenosis, pregnancy and previous angioedema. In patients with heart failure
ACEI should be introduced gradually with a low initial dose and gradual titration with regular blood pressure monitoring. Serum creatinine should be measured concomitantly; potassium-sparing diuretics should be discontinued.

Angiotensin II receptor antagonists (ARA): The angiotensin II receptors antagonists (ARA) are indicated as second-line therapy in patients intolerant of ACEI. Unlike ACEI they do not affect bradykinin metabolism and do not produce cough [7].

Beta-blockers: Beta-blockers have been shown to improve functional status and reduce cardiovascular morbidity and mortality in patients with heart failure. Bisoprolol and carvedilol reduce mortality in any grade of heart failure. Nebivolol is used in the treatment of stable mild-moderate heart failure in patients over 70 years old [8].

Aldosterone antagonists: The aldosterone antagonist's spironolactone and eplerenone have been shown to improve survival in patients with heart failure. Spironolactone reduces total mortality by 30% in patients with severe heart failure. However, gynaecomastia or breast pain occurred in 1 in 10 men taking spironolactone. Eplerenone given to patients with an acute myocardial infarction and heart failure reduced mortality by 15% and sudden cardiac death by 21%, with no gynaecomastia.

Cardiac glycosides: Digoxin is a cardiac glycoside that is indicated in patients with atrial fibrillation heart failure. It is used as add-on therapy in symptomatic heart failure patients already receiving ACEI and beta blockers.

The DIG study demonstrated that digoxin reduced hospital admission in patients with heart failure [9].

Vasodilators & nitrates: The combination of hydralazine and nitrates reduces afterload and preload and is used in patients intolerant of ACEI or ARA. The Veterans Administration Cooperative Study demonstrated that the combination of hydralazine (with nitrates) improved survival in patients with chronic heart failure. Trails also show that the same combination reduced mortality and hospitalization for heart failure in black patients with heart failure [10].

Inotropic & vasopressor agents: Intravenous inotropes and vasopressor agents are used in patients with chronic heart failure who are not responding to oral medication. Although they produce hemodynamic improvements they have not been shown to improve long-term mortality [11]

METHODOLOGY

Study Design:

This is a descriptive, cross-sectional, community-based study to identify the awareness of the patients about heart failure symptoms and length of delay in seeking medical care.

Study Area:

The study carried out in Sudan Heart Center - Khartoum State.

3.3. Study Population:

Heart failure patients who were attending Sudan Heart Center in Khartoum State.

Inclusion Criteria:

Patients with HF aged 18 years and above.

Exclusion Criteria:

Patients under 18 years.

Sample Size:

The sample size calculated according to this equation:

n= N.z 2.p.q/ α2 (N-1) + z 2.p.q

n= 135*(1.96)2*0.5*0.5 /0.052*(135-1) + (1.96)2*0.5*0.5

= 100

Where:

N = population size under study = (135)

z = value of normal curve corresponding to level of significance (95% =1.96)

α = 0.05 desired marginal of error

p = proportion of target group 0.5

q = 1-p =0.5

Calculated sample size (n) = 100

Study Technique:

Non probability sampling is used for patients attending Sudan Heart Center & diagnosed with HF was undergo the study & questionnaire was the tool for data collection.

Duration of the Study:

The duration of the data collection was from the November 1st 2015 to January 31st 2016.

Data Collection Technique:

The questionnaire was the primary tool for data collection (annexure 1). The information obtained from the patients with established HF according to the questionnaire. The questionnaire consists of patient's gender, age, knowledge about heart failure symptoms (Exertional dyspnoea, orthopnoea, paroxysmal nocturnal dyspnoea and fatigue) and time required for seeking medical care.

Data Analysis Technique:

For analysis of data, Statistical Package for Social Sciences software, version 21 (SPSS Inc., Chicago, IL) was used**.** Initially, all information gathered via questionnaire was coded into variables**.** Both descriptive and inferential statistics involving Chi-square test were used to present results. For Chi-square test, a *p*-value of less than 0.05 was considered statistically significant.

Ethical Considerations:

Ethical clearance form (annexure 2) was approved by University of Medical Science & Technology (UMST) & approved from Sudan Heart Center.

RESULTS

The study was carried out in 100 patients who already diagnosed with heart failure in Sudan Heart Center.

Table (1): Characteristic of patients involved in the study:

Characteristic	N(100)	
Patient's Gender		
Male	N(47)	47%
Female	N(53)	53%
Patient's Age		
18-40 years	N(7)	7%
41-63 years	N(37)	37%
>63 years	N(56)	56%

Table (2): Distribution of study- sample according to age.

Age group (Years)	Frequency	Percent
(18-40)	7	7%
(41-63)	37	37%
(>63)	56	56%
Total	100	100%

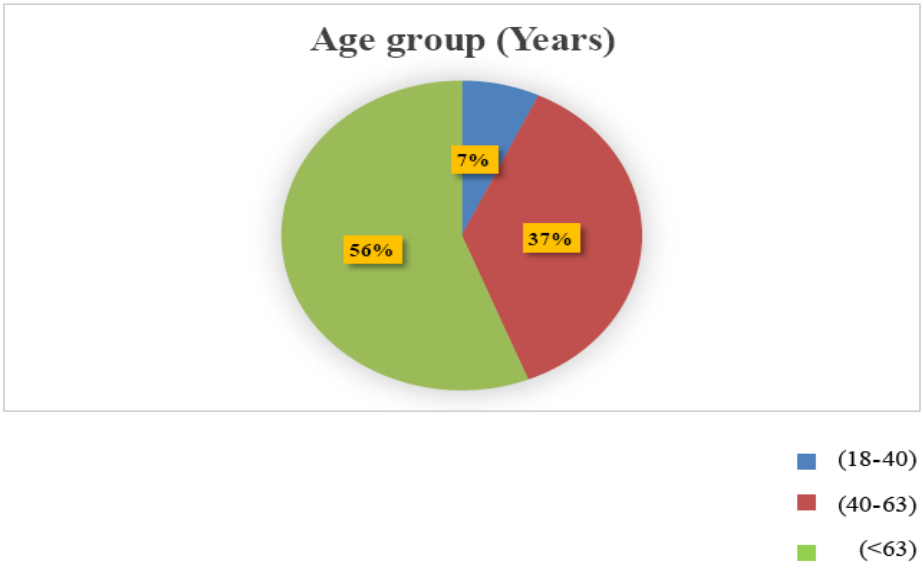

Figure (1): Distribution of study sample according to age.

Table (3): Distribution of study -sample according to gender.

Gender	Frequency	Percent
Male	47	47%
Female	53	53%
Total	100	100%

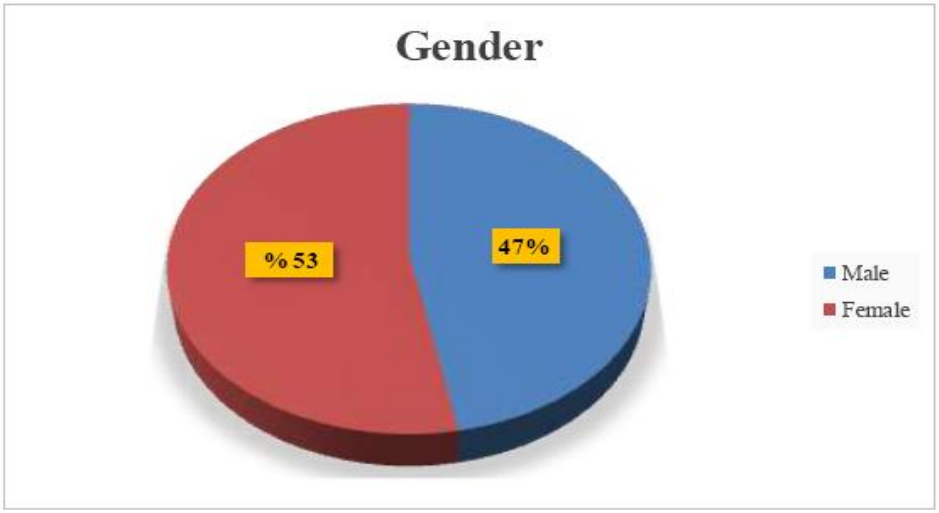

Figure (2): Distribution of study sample according to gender.

Table (4): Distribution of study -sample according to family history of heart failure.

Does your family have a history of heart failure?	Frequency	Percent
Yes	25	25%
No	75	75%
Total	100	100%

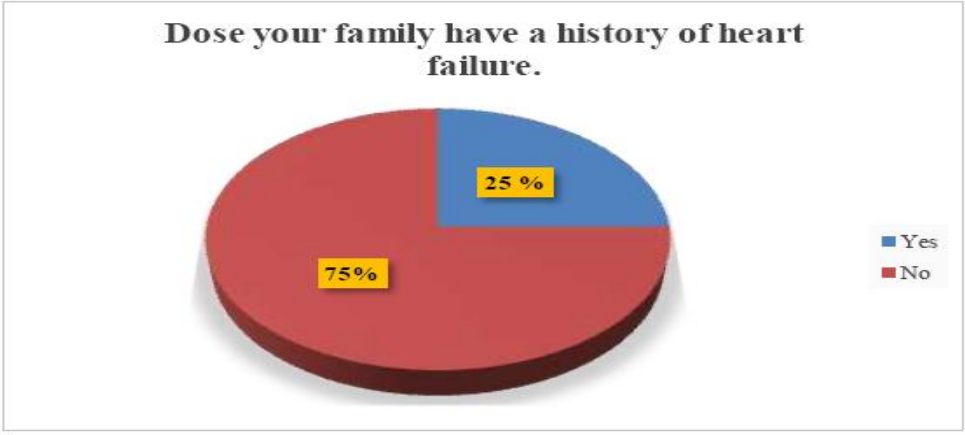

Figure (3): Distribution of study sample according to family history of heart failure.

Table (5): Distribution of study -sample according to awareness about the symptoms among population had a family history of heart failure.

Does your family has a history of heart failure? If yes, did you expand your awareness about the symptoms?	Frequency	Percent
Yes	13	52%
No	12	48%
Total	25	100%

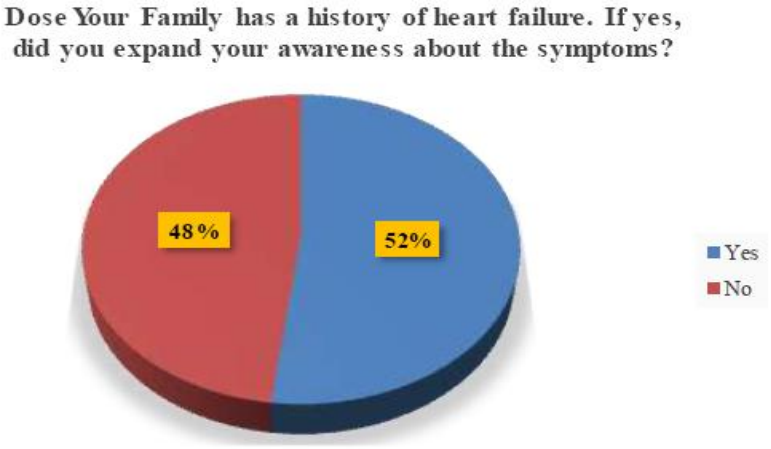

Figure (4): Distribution of study sample according to awareness about the symptoms among population had a family has a history of heart failure .Table (6): Distribution of study- sample according to awareness about the symptoms.

Table (6)

Are you aware about the symptoms of heart failure?	Frequency	Percent
Yes	90	90%
No	10	10%
Total	100	100%

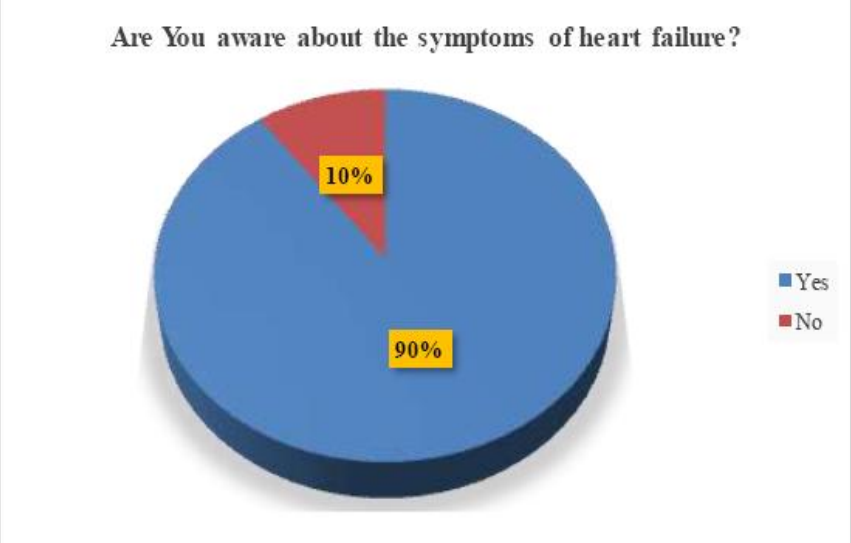

Figure (5): Distribution of study sample according to awareness about the symptoms.

Table (7): Frequency of knowledge about symptoms among population aware about the symptoms of heart failure.

Are You aware about the symptoms of heart failure? If yes what are the symptoms you know about it?	Yes	No	Percent of yes
Exertional Dyspnoea	64	26	71.1%
Paroxysmal Nocturnal Dyspnoea	59	31	65.5%
Orthopnoea	46	44	51.1%
Fatigue	32	58	35.6%
Study population = 90 (100%)			

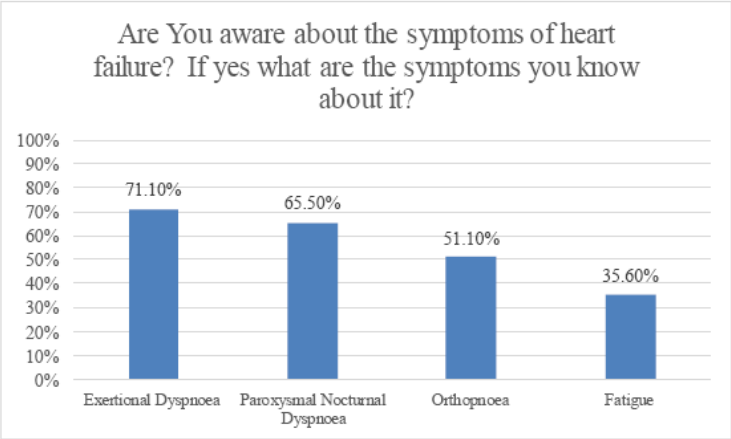

Figure (6): Frequency of knowledge about symptoms among population aware about the symptoms of heart failure.

Table (8): Distribution of study -sample according to recurrent heart failure.

Recurrent heart failure	Frequency	Percent
Yes	88	88%
No	12	12%
Total	100	100%

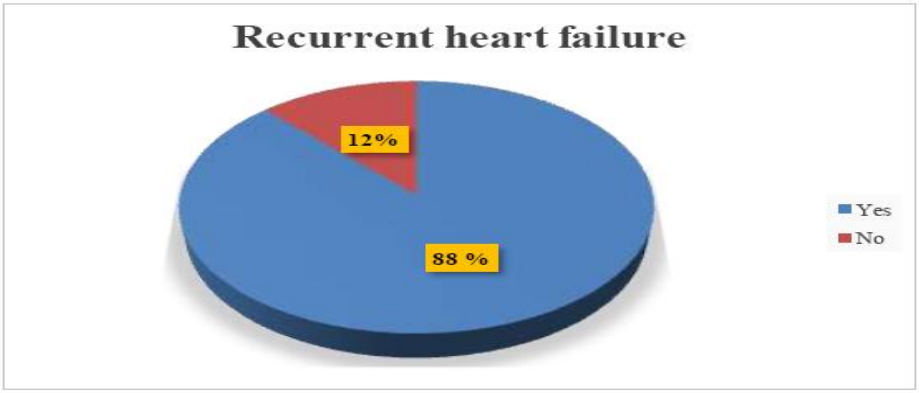

Figure (7): Distribution of study sample according to recurrent heart failure.

Table (9): Distribution of study sample according to awareness about the symptoms getting better among population had a recurrent heart failure.

If it's a recurrent heart failure, is your awareness about the symptoms are getting better?	Frequency	Percent
Yes	78	88.6%
No	10	11.4%
Total	88	100%

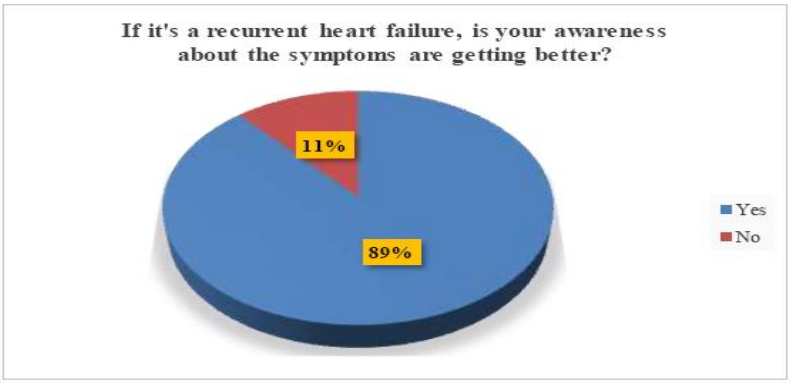

Figure (8): Distribution of study sample according to awareness about the symptoms getting better among population had a recurrent heart failure.

Table (10): Distribution of study sample according to awareness about the symptoms increased due to counseling from (doctors or self-awareness or both) among population had a recurrent heart failure.

If it's a recurrent heart failure, is your awareness about the symptoms increased due to counseling from doctors or self-awareness or both?	Frequency	Percent
Doctor Counseling	7	9%
Self-awareness	20	25.6%
Both	51	65.4%
Total	78	100%

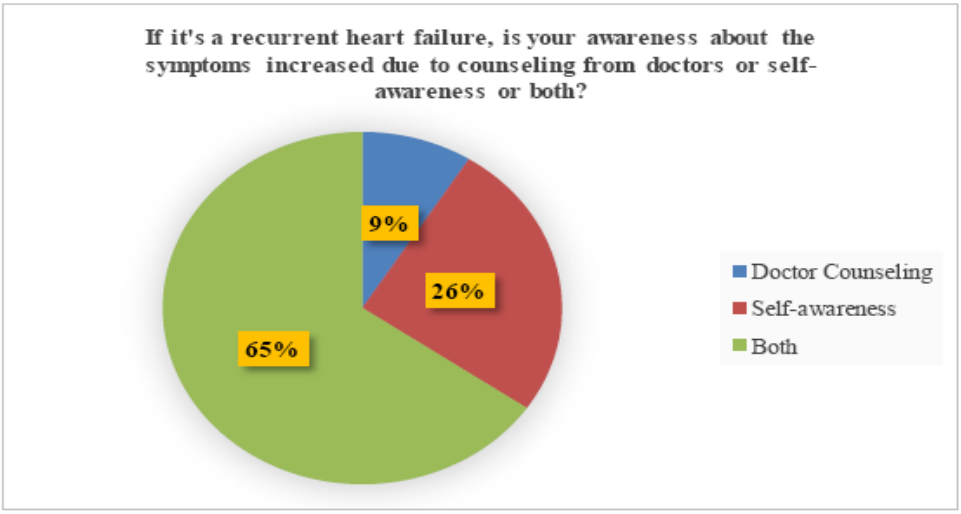

Figure (9): Distribution of study sample according to awareness about the symptoms increased due to counseling from (doctors or self-awareness or both) among population had a recurrent heart failure.

Table (11): Distribution of study sample according to seeking for medical care after experience the symptoms.

Do you seek medical care after experience the symptoms?	Frequency	Percent
Yes	95	95%
No	5	5%
Total	100	100%

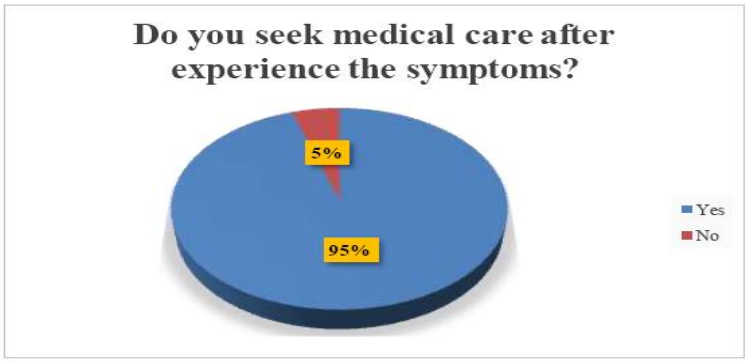

Figure (10): Distribution of study sample according to seeking for medical care after experience the symptoms.

Table (12): Distribution of study sample according to duration after the symptoms among population seeking medical care after experience the symptoms.

Do you seek medical care after experience the symptoms? If yes how long after the symptoms?	Frequency	Percent
Weeks	13	13.7%
Days	65	68.4%
Hours	17	17.9%
Total	95	100%

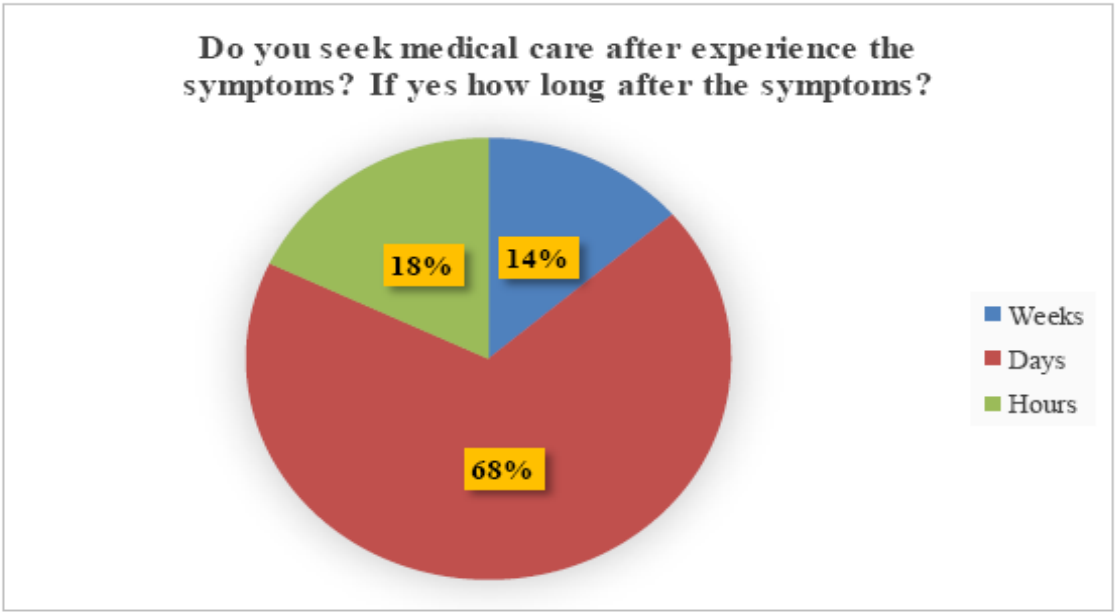

Figure (11): Distribution of study sample according to duration after the symptoms among population seeking medical care after experience the symptoms.

Table (13): Association between pre-hospital delay time, age, gender and awareness about the symptoms.

Cross tabulation		Are You aware about the symptoms of heart failure?		Chi square p value
		Yes	No	
Age group (Years)	(18-40)	7	0	0.658*
	(41-63)	33	4	
	(>63)	50	6	
Gender	Male	44	3	0.256*
	Female	46	7	
Does your family has a history of heart failure?	Yes	23	2	0.700*
	No	67	8	
Recurrent heart failure	Yes	81	7	0.065*
	No	9	3	
Do you seek medical care after experience the symptoms?	Yes	88	7	0.0001**
	No	2	3	
Study population = 90 (100%)				

- ****.P value < 0.05 that's considered as statistically significant.**
- ***.P value > 0.05 that's considered as statistically insignificant.**

Table (14): Association between pre-hospital delay time, age, gender and recurrent heart failure.

Cross tabulation		Do you seek medical care after experience the symptoms?		Chi square p value
		Yes	No	
Age group (Years)	(18-40)	7	0	0.506*
	(41-63)	34	3	
	(>63)	54	2	
Gender	Male	45	2	0.748*
	Female	50	3	
Does your family have a history of heart failure?	Yes	25	0	0.185*
	No	70	5	
Recurrent heart failure	Yes	86	2	0.001**
	No	9	3	
Study population = 90 (100%)				

- ****.P value < 0.05 that's considered as statistically significant.**
- ***.P value > 0.05 that's considered as statistically insignificant.**

CONCLUSION

This study has shown that 56% of the patients aged >63 years, 37% aged between 41-63years and 7% aged between 18-40years. 90% of patients who already diagnosed with heart failure (HF) are aware about the symptoms of the disease.

About 71.10% aware about exertional dyspnea, 65.50% aware about paroxysmal nocturnal dyspnea, 51.10% aware about orthopnea and 35.60% aware about fatigue. 95% of the patients seek medical care after experience the symptoms.68% seek the medical acre after days, 18% after hours and 14% after weeks.

88% of the patients have recurrent heart failure, 89% of these patients improve their awareness about the symptoms. 65% involve in this study are aware about the symptoms from both doctor counseling and self-awareness, followed by 26% with self-awareness and 9% from doctor counseling.

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