# ASSESSMENT OF THE LEVEL OF STRESS AMONG PATIENTS WITH HEART FAILURE IN SULAIMANI CARDIAC HOSPITAL

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## ABSTRACT

### *Background*

Life events and experiences eventually lead to stress. Stress also activates one's process of thinking and autonomic arousal level. One of the complications of heart failure is coronary artery disease, which can also be caused by stress and behaviours like being extremely hardworking toward achieving one's goals.

### *Objectives*

To detect the stress levels of heart failure patients, and to find out the association between socio-demographic characteristics and level of stress.

### *Materials and Methods*

Quantitative descriptive design (non-probability purposive sample). The sample was the heart failure admitted to Sulaimani Cardiac Hospital. A total of 200 heart failure patients were selected by non-probability sampling methods. The standardized Perceived Stress Scale tool was used for the study.

### *Results*

Almost half (50.5%) of the sample was between 62 to 77 years. More than half were males, widows, illiterate with low economic status, and lived with their family members (65.5, 53%, 61%, 65.5%, and 68%) respectively. Less than half (48%) of them were in class III of heart failure according to the New York Heart Association classification. Most of the sample were from urban areas (91%), Nearly half of the sample (47.5%) had a high level, (51%) had moderate stress, and only (1.5%) of them had low stress. Also, the present study revealed a significant association among all items of sociodemographic and clinical characteristics and levels of stress except the economic state, marital state, and resident at the p-value of 0.05.

### *Conclusion*

This research demonstrated an approach to developing more coping strategies to reduce stress among heart failure patients. So, this study recommended that the medical staff who work in the coronary care unit should involve themselves in dealing with the psychosocial needs of those patients and take measures to plan to solve their problems, especially stress, through teamwork.

**Keywords:** *Assessment, Perceived stress scale, Heart failure, Stress, Sulaimani Cardiac Hospital.*

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## INTRODUCTION

Stress is a standard part that everyone experiences in life regardless of age, sex, ethnicity, economic state, or level of education, and trying to survive it is necessary. It develops from experiences and life events, which motivates the person's thinking process. According to the studies, depression, anxiety, and cognitive disorders frequently occur as complications or co-morbid conditions in persons with cardiovascular disease. Stress expected to worsen the clinical manifestations of heart failure, physical and social functioning, and quality of life. So, the risk of cardiovascular death is reduced by Psychosocial therapy in sudden cardiac arrest survivors, and life may improve the well-being of patients with heart failure [1].

Heart failure is an expensive situation with a high occurrence of complications and death rates. In 2012, the total costs for HF in the United States were above $30 billion, which is expected to increase to more than $68 billion by 2030 [2]. Based on the work of a study, heart failure is frequently observed with considerable psychological distress [3].

Environmental settings or chronic situations judged in a primary appraisal method and then seen as either non-threatening or a threat to physical and psychological health or well-being have been defined as Stressors. When people believe they cannot alter their condition, emotion-focused coping is an attempt to control their emotional response to a stressful condition [4]. The maladaptive form of coping associated with compromised health results is a top view of emotion-focused coping, which is linked with unhealthy lifestyle performs such as cigarette smoking, physical inactivity, drinking alcohol, non-compliance with the therapeutic regimen, and medication use that may lead to re-hospitalization and an even higher rate of death [5]. Oppositely, problem-focused coping contains cognitive and behavioural approaches to change or cope with the stressor, such as religion, belief, organization, or reaching out for instrumental support [6].

These are undoubtedly related to better modification and health outcomes, such as more extended existence and fewer frequent re-hospitalizations compared to those with emotion-focused coping [5]. To design future interpositions to decrease the stress from heart failure and adjust how heart failure patients consider their situation and cope with it, understanding factors that affect survival in patients with heart failure is essential.

## MATERIALS AND METHODS

### *Design of the study*

Quantitative descriptive design (non-probability purposive sample).

### *Administrative Arrangements*

The proposal of the present study was approved by the ethics committee at the College of Medicine / University of Sulaimani, and heart failure patients' verbal consent was achieved before beginning data collection.

### *Sample of the study*

Non-probability (purposive) sample of 200 heart failure patients (69 females and 131 males) diagnosed with heart failure and admitted to a Sulaimani Cardiac hospital in Sulaimani City.

### *Objectives of the study*

The main purpose of this research was to detect self-reported stress levels and the association between socio-demographic data and levels of Perceived Stress Scale (PSS) of patients with HF in Sulaimani cardiac hospital.

### *Inclusion Criteria*

A-Male and female patients from 18 years and above.

B-Diagnosed with HF approved by the cardiologist team in classes (I, II, III, and IV) according to the New York Heart Association (NYHA).

C. Ability to communicate.

### *Exclusion Criteria*

A- Unwillingness to continue in the study.

B- Existence of any medical problem that becomes a barrier to their health during the interview.

C- Severe mental problems.

### *The Study Instrument*

For data collection, the study tool was designed and based on an extensive review of related literature and studies to find out the clinical and socio-demographic data of patients with HF and to describe the stress of patients with HF by using the standardized tool of perceived stress scale (PSS). The questionnaire was composed of three parts which were distributed through the following:

The first part dealt with participants' socio-

demographic and clinical characteristics such as (age, gender, educational level, occupation, economic state, living with? and severity of heart failure according to the New York Heart Association classification (I, II, III, IV).

The second part contains data concerning the perceived stress scale (PSS). The Perceived Stress Scale was developed in 1983 by Sheldon Cohen and his colleagues, and the original PSS consisted of 14 items that person's particular interpretation of their responses to stressors through four weeks. Currently, the PSS is most frequently applied as the ten-item scale with the below stress-related questions concentrated on the respondent's feelings and judgments during the period of four weeks [7].

Items 1,2,3,6,9, and 10 come with the following response choices:

- Never (zero)
- Rarely (+one)
- Sometimes (+two)
- Fairly often (+three)
- Very often (+four)

While the scoring is inverted for items: 4, 5, 7, and 8:

- Never (+four)
- Rarely (+three)
- Sometimes (+two)
- Fairly often (+one)
- Very often (zero)

The scale of Perceived Stress score is achieved by summing the points conferred to the ten items, and their collections from zero to forty where:

0-13 (considered a low level of stress)

14-26 (considered a moderate level of stress)

27-40 (considered a high level of perceived stress) [7].

The third part deals with the association between some socio-demographic and clinical characteristics of the study sample, such as (age, gender, economic state, and living with, and NYHA classification (I, II, III, IV) with the level of stress.

### *The setting of the study*

The study was conducted at a Sulaimani Cardiac Hospital in Sulaimani City.

### *Validity of the study tool*

The content validity of the tool was determined through a panel of five experts in the fields of (Psychology, Cardiology, and Internal Medicine), to investigate the clarity, relevancy, and adequacy of the questionnaire items. Experts were provided with the instrument by their suggestions about the possibility of the items included in the form.

### *Pilot Study*

A pilot study was conducted on (20) male and female heart failure patients who were admitted to a Cardiac hospital in Sulaimani City from (15 January to 1st February 2022) and excluded from the study sample.

### *Reliability of the questionnaire*

Reliability was conducted by internal consistency reliability (split half), which was conducted on 20 heart failure patients gathered for such reliability estimation. To achieve the reliability of the study, the instrument, the person Correlation Coefficient (r), was used for determination. The result of the correlation coefficient was ($r = 0.85$).

### *Data Collection*

The data was collected through the utilization of an adopted and constructed tool by interviewing the heart failure patients themselves.

### *Methods of data collection*

The data were collected through the utilization of the adopted and constructed tool, and the interview method was performed. The data collection process was performed from the 5th of February to to 15th of May 2022. Every patient took about 20 minutes to collect data by the researcher after obtaining informed consent. Forty patients dropped out of the study sample because 20 of them did not match the inclusion criteria, and 20 of them refused to participate in the study. Finally, out of 240 heart failure patients who remained, only 200 participants were in the current study.

### *Data analysis*

The data was organized and then coded into spreadsheet files. Statistical analysis was used by (SPSS version 26) P-value was considered to be significant at the level of ($\leq 0.05$).

## RESULTS

Regarding the age of heart failure patients, Table (1) demonstrated that; 101(50.5%) were between 62 to 77 years, and 49 (24.5%) of the patients were between 46 to 61 years. Out of 200 HF patients, 131 (65.5%) were males, 94 (47%) were married, and 106 (53%) were widows, 122 (61%) of them were illiterate, while only 11 (5.5%) graduated from institutes and colleges. Non-governmental employees of the patients 38(19%), governmental employees 14 (7%) while 47 (23.5%) were retired, and 182 (91%) participants were from urban areas. More than half 136 (68%) lived with their family members, and 131(65.5%) of HF patients' income was insufficient. Clinical data illustrated that 61 (30.5), 96 (48%), and 43 (21.5%) of them were in class II, III, and IV of HF according to the (NYHA) classification, respectively.

Table 2 dealt with the level of stress according to the perceived stress scale, which revealed that 95 (47.5%), 102 (51%), and 3 (1.5%) of them have high, moderate, and low levels of stress, respectively.

Table 3 shows the association between the socio-demographic and clinical characteristics of the study sample and the levels of stress; it detected a significant association among all socio-demographic and clinical characteristics and levels of stress except the marital state, residence and economic state at a p-value of≤ 0.05.

**Table 1. Socio-demographic and clinical characteristics of the study sample.**

| Variables | Classes | Frequency (%) |
|---|---|---|
| **Age (year)** | 30-45 | 5 (2.5) |
| | 46-61 | 49 (24.5) |
| | 62-77 | 101 (50.5) |
| | 78-93 | 43 (21.5) |
| | ≥94 | 2 (1) |
| **Gender** | Male | 131 (65.5) |
| | Female | 69 (34.5) |
| **Marital state** | Widow/er | 106 (53) |
| | Married | 94 (47) |
| **Occupation** | Non-Governmental employee | 38 (19) |
| | Governmental employee | 14 (7) |
| | Jobless | 38 (19) |
| | Retired | 47 (23.5) |
| | Housewife | 63 (31.5) |
| **Level of Education** | Illiterate | 122 (61) |
| | Read and write | 10 (5) |
| | Primary & Secondary School | 57 (28.5) |
| | Graduated from institute & and college | 11 (5.5) |
| **Residence** | Rural | 18 (9) |
| | Urban | 182(91) |
| **Live with?** | Alone | 64(32) |
| | Son, daughter, husband & wife | 136 (68) |
| **Economic Status** | Insufficient | 131 (65.5) |
| | Barely sufficient | 57 (28.5) |
| | Sufficient | 12 (6) |
| **The severity of HF according to (NYHA) classification** | II | 61 (30.5) |
| | III | 96 (48) |
| | IV | 43 (21.5) |

**Table 2. Level of stress of heart failure patients according to perceived stress scale.**

| Levels of Stress | Frequency (%) |
|---|---|
| **High perceived stress (27- 40)** | 95 (47.5) |
| **Moderate perceived stress (14 - 26)** | 102 (51) |
| **Low perceived stress (0 - 13)** | 3 (1.5) |

**Table 3. Association between socio-demographics and level of stress (N =200).**

| Variables | Levels of Perceived Stress | | | | | | Total |
|---|---|---|---|---|---|---|---|
| | High stress | | Moderate stress | | Low stress | | |
| | Frequency | % | Frequency | % | Frequency | % | Frequency (%) |
| **Age (years)** | | | | | | | |
| **30-45** | 2 | 40.0 | 3 | 60.0 | 0 | 0 | 5 (2.5) |
| **46-61** | 14 | 28.6 | 34 | 69.4 | 1 | 20.0 | 49 (24.5) |
| **62-77** | 52 | 52.0 | 46 | 46.0 | 2 | 2.0 | 100 (50) |
| **78- 93** | 25 | 56.8 | 19 | 43.2 | 0 | 0 | 44 (22) |
| **>94** | 2 | 100 | 0 | 0 | 0 | 0 | 2 (1) |
| P. value | 0.047** | Significant | | | | df= 8 | |
| **Gender** | | | | | | | |
| **Male** | 52 | 39.7 | 77 | 58.8 | 2 | 1.5 | 131(65.5) |
| **Female** | 43 | 62.3 | 25 | 36.3 | 1 | 1.4 | 69(34.5) |
| P. value | 0.005* | Significant | | | | df=2 | |
| **Level of education** | | | | | | | |
| **Illiterate** | | | | | | | |
| **No formal education** | 73 | 59.8 | 46 | 37.7 | 3 | 2.5 | 122(61) |
| **Primary** | 0 | 0 | 10 | 100 | 0 | 0 | 10(5) |
| **School** | 10 | 29.4 | 24 | 70.6 | 0 | 0 | 34(17) |
| **Secondary** | 7 | 30.4 | 16 | 69.6 | 0 | 0 | 23(11.5) |
| **School** | 5 | 45.5 | 6 | 54.5 | 0 | 0 | 11(5.5) |
| **Graduated from institute and college** | | | | | | | |
| P. value | 0.000** | Highly Significant | | | | df = 8 | |
| **Marital status** | | | | | | | |
| **Widowed** | 54 | 50.9 | 51 | 48.1 | 1 | 0.9 | 106(53) |
| **Married** | 41 | 43.6 | 51 | 54.3 | 2 | 2.1 | 94(47) |
| P. Value | 0.514* | Non-Significant | | | | df=2 | |
| **Occupation** | | | | | | | |
| **Jobless** | 27 | 71.7 | 10 | 26.3 | 1 | 2.6 | 38(19) |
| **Student** | 1 | 100 | 0 | 0 | 0 | 0 | 1(0.5) |
| **Retired** | 13 | 28.3 | 32 | 69.6 | 1 | 2.2 | 46(23) |
| **Governmental employer** | 4 | 28.6 | 10 | 71.4 | 0 | 0 | 14(7) |
| **Self-employer** | 9 | 26.5 | 24 | 70.6 | 1 | 2.9 | 34(17) |
| **Housewife** | 4 | 65.1 | 22 | 34.9 | 0 | 0 | 63(31.5) |
| P. Value | 0.000** | Highly Significant | | | | df= 12 | |

**Table 3. Continued.**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Residence** | | | | | | | |
| **Rural** | 7 | 38.9 | 10 | 55.6 | 1 | 5.6 | 18(9) |
| **Urban** | 88 | 48.4 | 92 | 50.5 | 2 | 1.1 | 182(91) |
| P. Value | 0.265* | Non-Significant | | | | df=2 | |
| **Economic status** | | | | | | | |
| **Insufficient** | 65 | 49.6 | 63 | 48.1 | 3 | 2.3 | 131(65.5) |
| **Barely** | 23 | 40.4 | 34 | 59.6 | 0 | 0 | 57(28.5) |
| **sufficient** | 7 | 58.3 | 5 | 41.7 | 0 | 0 | 12(6) |
| **Sufficient** | | | | | | | |
| P. Value | 0.413* | Non-Significant | | | | df= 4 | |
| **Live with?** | | | | | | | |
| **Alone** | 41 | 64.1 | 22 | 34.4 | 1 | 1.6 | 64(32) |
| **Son/daughter** | 13 | 31.0 | 29 | 69.0 | 0 | 0 | 42(21) |
| **Husband/wife** | 41 | 43.6 | 51 | 54.3 | 2 | 2.1 | 94(47) |
| P. Value | 0.007* | Significant | | | | df= 4 | |
| **Severity of heart failure** | | | | | | | |
| **II** | 16 | 26.2 | 45 | 73.8 | 0 | 0 | 61(30.5) |
| **III** | 48 | 50.0 | 46 | 47.9 | 2 | 2.1 | 96(48) |
| **IV** | 31 | 72.1 | 11 | 25.6 | 1 | 2.3 | 43(21.5) |
| P. Value | 0.000* | Highly Significant | | | | df= 4 | |

**** Fisher exact test** *** Chi-square**

## DISCUSSION

The study was performed with 200 patients with HF in the coronary care unit of Cardiac Hospital in Sulaimani City by using a convenient sampling technique. The tool Perceived Stress Scale was used to assess the stress situation. One aim of this study was to describe the socio-demographic characteristics of the study sample; the study indicated that more than half of the participant was between 62 - 77 years old, almost two-thirds were male, more than half of them were Widow/er, illiterate with a low economic state, and lived with their family members, such as their husbands, wives, sons, and daughters. Nearly half of them were in class III of NYHA. Some results of this study agree with the result of the study done in Baghdad in 2013, which indicated that the majority of the study sample were between (60 and 69) years old, illiterate, married, and of low socioeconomic status [8] as well as nearly most of them were from urban areas. Also, this outcome aligns with the result of the study done in India in 2012, which mentioned that the age of their participants was above sixty years old, uneducated patients from urban areas with a low economic state. But, regarding gender, the current study was opposite to the Indian study because, in their study, females were more than males [1].

The second objective of this study was to assess the stress level among patients with HF. It illustrates that nearly half of the patients had a high-stress level, more than half had moderate stress, and only 3 (1.5%) patients had a low stress level. This finding disagrees with the study done in India [1]; their results detected that more than half of the participants had low stress, nearly half of them had moderate stress, while, there are no HF patients with a high level of stress. The researchers address the high-stress level of these patients in our community to the fact that ordinary people have already developed stress by the time they are admitted to the hospital, as well as many other factors, such as the patient's struggle with heart failure for a while and their elderly age. on the other hand, their poor economic status, decreased care and attention by their peers and children due to their life business, and lack of teamwork in the hospital department such as collaboration among Cardiologists, psychiatrists, and pharmacists.

The current study demonstrated a significant association between all socio-demographic characteristics and levels of stress except the economic state. Some of these findings in the present study are similar to the study conducted by Bhagyalakshmi et al.,2012, their results showed that there was a statistically significant association between gender and occupation. On the

other hand, the current finding disagrees with the same research, they reported no significant association with age, education, or family system.

In this study, there was no significant association between the level of stress and the economic state, marital state, and residence while it was significant in the study of Bhagyalakshmi, et al.,2012 [1]. The current study showed that more than half of the HF patients had high and moderate stress levels; this finding agrees with the study [9], which demonstrated that the participants who had a moderate income from coronary heart disease had moderate stress. So, it is a necessary necessity to improve the knowledge regarding the prevention of CAD, stress management techniques, and counselling sessions for patients with CAD. According to the results of a study conducted by Anchal Agarwal, and Kamayani Mathur in India [10], the researchers demonstrated significant differences concerning the level of perceived stress between both healthy persons and patients with heart disease; whereas they observed a higher level of perceived stress in healthy people compared to the heart disease patients who have poor cardiovascular health relatively.

The researchers believe that this condition is related to lack of nursing home care, health awareness, and absence of teamwork among different specialists in a special centre for rehabilitation and copying heart failure patients with this difficult situation; because of this, the cardiologist and cardiologist nurses in the coronary care unit should scientifically behave with heart failure patients to decrease the level of patients' stress, because the nurse plays a vigorous role in discovering and assisting with the discomfort of patient regularly; that is the reason it is significant for attendants to put on clinical rules into attention the heart disease patient to reduce their suffering. Professional or expert nurses accept a massive job in diminishing the worldwide weight and taking an interest in improving the outcome of the individual and networks, so the nurses also need knowledge, awareness, and practices that will assess them to function as contributors in a multidisciplinary group in resolving heart disease [11,12]. Therefore, the finding of this study recommended that the Ministry of health start working with teamwork among cardiologist nurses, cardiologists, psychiatrists, clinical psychologists, pharmacists, nutritionists, neurologists, and patient's families or caregivers to assess heart failure patients to adapt to this difficult condition and to decrease the level of stress. Also, a training course and health education are required for every healthcare worker in the coronary care unit and family members of patients with HF, this step is helpful to strengthen family support in caring for these family members, and psychoeducation can be given to families who have members with heart disease. To strengthen the outcomes, additional treatment in the form of self-help groups that support CHF clients and families dealing with related issues may be provided in addition to family psychoeducation. This will allow the community to continue to benefit from therapy regularly. To involve the hospital's counselling department in developing mental health programs that would make it easier for patients and families receiving CHF treatment to address their psychological issues [13].

In conclusion, the current study, the researcher concluded that more than half of patients with heart failure perceived moderate stress levels, almost another half perceived high stress levels, and few perceived low- stress levels. Developing more coping strategies to decrease stress among HF patients is one of the most crucial recommendations of the current study. Therefore, the health care workers, especially the nurses, have the responsibility to conduct plans and programs like health education, stress decline methods, and counselling periods to overcome stress. Several coping mechanisms, including sleeping, eating, laughing, and daily physical exercise, should be encouraged to reduce the stress of heart disease patients, especially heart failure patients.

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