

Quality of life and Psychological Distress among Congestive Heart Failure Patients: A Prospective Observational Study from Pakistan

Abstract

Introduction: Congestive Heart failure (CHF) is a cardiovascular disease ~~having a negative impact on~~ the physical, social, psychological, emotional, and well-being status of an individual. The interference due to symptoms and signs of heart failure affects quality of life (QoL) and leads to depression among the majority of the patients. **Objective:** ~~The aim of this study was~~ to assess the quality of life and depression among CHF patients in Pakistan. **Methodology:** A descriptive cross-sectional study design was used to assess the quality of life and depression among CHF patients in Pakistan. The study population included CHF patients greater than 18 years old, both genders visiting public and private Health Care Facilities located in twin cities of Pakistan. Quality of life was assessed by using SF 36 and KCCQ while HADS (hospital anxiety and depression scale) was used to evaluate the Depression among 382 CHF patients selected using the convenience sampling technique. Data was entered in SPSS version 21 and statistically analyzed. **Results:** The results highlighted that use of SF-36 showed the lowest scores for QoL in the domain of role physical (8.82, \pm 8.23) followed by the domain of role emotional (10.17, \pm 8.6) whereas the highest scores were observed in the domain of mental health (67.26, \pm 15.67). On the other hand, the results reported that the use of KCCQ-12 highlighted that the lowest scores for QoL were observed in all the domains of QoL i.e. physical limitations (39.98, \pm 31.93), symptoms (73.42, \pm 27.94), social limitations (43.21, \pm 27.78) and quality of life (43.32, \pm 23.38). **Conclusion:** The current study concluded that CHF patients had poor quality of life and severe depression. Several domains of QoL among CHF patients were compromised including physical limitations, emotional limitations, social functioning, and pain. For the general symptoms scale, shortness of breath and limitation in sleeping posture are the most commonly affected leading to compromised quality of life. Interventions must be designed with a focus on patient counseling tailored with the needs for improving quality of life and minimizing depression.

Keywords: CHF, quality of life, depression, SF-36, KCCQ-12, HADs, Pakistan.

Introduction

Congestive Heart failure (CHF) is a cardiovascular disease ~~having a negative impact on~~ the physical, social, psychological, emotional, and well-being status of an individual.

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The patients are unable to perform daily activities with ease and suffer from psychosocial as well as financial problems[1]. The interference due to symptoms and signs of heart failure affects the quality of life (QoL) and leads to depression among the majority of them. Minimizing the progression of the disease as well as improving quality of life are the main goals for the management of heart failure patients[2]. Although, during the past few years, the management of heart failure has improved but the physical deterioration along with psychological distress still needs to be addressed. Symptoms such as fatigue and dyspnea along with depression/anxiety, complex therapeutic regimens, and cost of treatment lead to reduced quality of life. Moreover, increasing age, gender, and severity of the disease can further affect the quality of life among CHF patients [3]. A study conducted in Korea showed that gender, financial status, and functional status of patients affected the quality of life in heart failure patients [4]. Decreased quality of life and increased utilization of healthcare services has been observed in heart failure. The cost burden is increased due to increased frequency and longer hospital admissions. Patient self-care can help to reduce the symptoms and improve quality of life [5]. The longer duration of the disease resulted in severe symptoms of depression and reduced quality of life among CHF patients in Serbia [6].

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According to World Health Organization (WHO), 58% of the total death burden in Pakistan is contributed by non-communicable diseases (NCDs) of which 29% is due to cardiovascular diseases (CVDs)[7]. Patients suffering from heart failure are more prone to the development of depression which in turn leads to reduced quality of life. A study conducted in Karachi showed that depression was high among patients suffering from chronic heart failure. Males were comparatively more depressed as compared to the other

gender [8]. Another study from Pakistan highlighted that various factors were linked with the development of depression in CHF patients including reduced social support, poor socioeconomic status, poor lifestyle, and increased age. The severity of the disease and previous cardiac history also affected the quality of life [9]. The reduced quality of life can severely impact the daily life activities among chronic heart failure patients. A study conducted in Karachi showed that the majority of the patients were depressed. Poor income and low education were linked with higher depression and poor QoL [10]. Another study conducted in Peshawar showed that females reported poor quality of life [11]. Quality of life is now considered as an important component in assessing CHF management and should be performed as a routine practice. Limited studies have been conducted focusing on the assessment of the quality of life and depression among CHF patients which could further lead to achieving a milestone in improving quality of life and depression in CHF patients by designing multiple healthcare intervention. Therefore, the present study was designed to assess QoL and depression among CHF patients in Pakistan.

Methodology

A descriptive cross-sectional study design was used. The study site for the research included public and private healthcare facilities located in the twin cities of Pakistan. Study approval was taken from the Ethical Committee of Hamdard University (ERC-HUIC-22/015). Informed written consent was taken from the study respondents along with the confidentiality agreements to ensure that their personal information will not be disclosed and exploited, and all the information will be used for research purposes only. The inclusion criteria for the study were the CHF patients

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diagnosed according to the World Health Organization criteria of age above 18 years and both male and female while patients with other cardiovascular diseases were excluded from this study.

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The determination of sample size was calculated by utilizing the Raosoft sample size calculator which gave an estimated sample size of 382 respondents (CHF patients) at a confidence interval of 95% and a margin of error of 5%. A convenience sampling technique was used to select the respondents. According to the convenient sampling technique, all the available respondents that were present at the time of data collection were included in the study. Pre-validated questionnaires were used to assess QoL and depression among CHF patients. Quality of life was assessed by both generic as well as by specific instruments i.e. SF 36 and KCCQ, respectively. HADS (hospital anxiety and depression scale) a 14-item self-administered questionnaire specifically developed to detect depression states for physically ill clients was used to evaluate depression among CHF patients. Pilot testing was conducted on 10 % of the sample size and the Cronbach alpha values were 0.71, 0.73, and 0.69 respectively.

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Data were collected during January- May 2022. Self-administered questionnaires were ensured for data collection to avoid biasness. The response rate for the study was 100 %. Data was cleaned, coded and analyzed statistically using SPSS version 21. Kruskal-Wallis and Mann-Whitney tests ($p \geq 0.05$) were performed to find differences among different variables.

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Results

Out of 382 respondents, 65.7 % (n = 251) were males and 34.5 % (n = 131) were females. Of the total respondents, 34.8 % (n = 133) were greater than 60 years old, 26.7 % (n = 102) were in the age group of 41-50 years and 2.9 % (n = 11) were in the age group of 31-40 years. On the other hand, 38.2 % (n = 146) were from urban areas while 61.8 % (n = 236) resided in rural areas. Out of all the respondents, 40.8 % (n= 156) had stunting while 59.2 % (n = 226) did not undergo stunting. A detailed description of demographic characteristics is given (Table 1).

Table 1 Demographic Characteristics

	Indicator	Total n (%)
Age	20-30Y	17 (4.5)
	31-40Y	11 (2.9)
	41-50Y	102 (26.7)
	51-60Y	119 (31.2)
	>60Y	133 (34.8)
Gender	Male	251 (65.7)
	Female	131 (34.3)
City	Islamabad	44 (11.5)
	Rawalpindi	56 (14.7)
	KPK	111 (29.1)
	Other	171 (44.8)
Setting	Urban	146 (38.2)
	Rural	236 (61.8)
Stunting	Yes	156 (40.8)
	No	226 (59.2)
Cardiac Surgery	Yes	139 (36.4)
	No	243 (63.6)
Time of Stunting	Prescribed	278 (72.8)
	Less Than 1 Year	84 (22.0)
	2-5 Year	16 (4.2)
	More Than 5 Year	4 (1.0)
Treatment Sector	Public Hospital	36 (9.4)
	Private Hospital	346 (90.6)
Payment Mode	Public Insurance	296 (77.5)
	Private Insurance	37 (9.7)
	Self	49 (12.8)
Qualification	Primary	126 (33.0)

Current Salary	Middle	91 (23.8)
	Secondary	85 (22.3)
	Graduate	51 (13.3)
	Masters	21 (5.5)
	Others	8 (2.1)
	Rs.<10,000	81 (21.2)
	Rs.10,000-20,000	69 (18.1)
	Rs.21,000-30,000	129 (33.8)
	Rs.31,000-40,000	69 (18.1)
	Rs.41,000-50,000	14 (3.7)
Rs > 51,000	20 (5.2)	

The results highlighted that use of SF-36 showed the lowest scores for QoL in the domain of role physical (8.82, \pm 8.23) followed by the domain of role emotional (10.17, \pm 8.6) whereas the highest scores were observed in the domain of mental health (67.26, \pm 15.67). On the other hand, the results reported that the use of KCCQ-12 highlighted that the lowest scores for QoL were observed in all the domains of QoL i.e. physical limitations (39.98, \pm 31.93), symptoms (73.42, \pm 27.94), social limitations (43.21, \pm 27.78) and quality of life (43.32, \pm 23.38). A detailed description is given in (Table 2).

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Table 2 Domains of Quality of Life among CHF Patients

SF-36		KCCQ-12	
Indicator	Mean (\pm SD)	Indicator	Mean (\pm SD)
Physical functioning	45.78 (\pm 22.91)	Physical limitations	39.83 (\pm 31.93)
Role physical	8.82 (\pm 8.23)	Symptoms	73.42 (\pm 27.94)
Bodily pain	52.65 (\pm 21.74)	Social limitations	43.21 (\pm 27.78)

General Health	50.11 (± 11.50)	Quality of Life	43.32 (± 23.38)
Social functioning	46.14 (± 15.36)		
Role emotional	10.17 (± 8.60)		
Vitality	63.61 (± 17.57)		
Mental health	67.26 (± 15.67)		

The results revealed that the PF of most of CHF patients was limited a lot especially in regard to vigorous activities (n= 122, 31.9 %), climbing several flights of stairs (n=179, 46.9 %) and walking for more than a km (n= 143, 37.4 %). CHF patients were limited in kind of work (n= 253, 66.2 %) and had difficulty in performing work (n= 271, 70.9 %) some of the time. Respondents felt very severe bodily pain during the past 4 weeks (n= 19, 5 %) and pain interfered extremely with their normal work (n= 40, 10.5 %). Moreover, the results highlighted that respondents felt it to be mostly true that they get sick a little easier than others (n= 22, 5.8 %), they were as healthy as anybody they knew (n= 14, 3.7 %) and their health was excellent (n= 27, 7.1 %). The results further revealed that respondents felt it mostly true that their health could get worse (n= 111, 29.1 %). The results showed that respondents felt full of life (n= 54, 14.1 %), had a lot of energy (n= 68, 17.8 %), felt worn out (n= 47, 12.3 %) and tired (n= 97, 25.4 %) most of the time. The results showed that social functioning was limited among CHF patients in terms of its extent as not at all (n= 36, 9.4 %), slightly (n= 130, 34 %), moderately (n= 151, 39.5 %), quite a bit (n= 40, 10.5 %) and extremely (n = 25, 6.5 %). The results highlighted that most of the time respondents felt nervous (n= 42, 11 %), sad and low in spirit (n= 38, 9.9 %), downhearted and depressed (n= 29, 7.6 %) most of the time. A detailed description is given (Table 3).

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Table 3 Assessment of Quality of Life among CHF Patients using SF-36

Indicators		n (%)
Physical functioning		
Vigorous activities, such as running, lifting heavy objects, participating in strenuous sports	Yes, limited a lot	122 (31.9)
	Yes, limited a little	216 (56.5)
	No, not limited at all	44 (11.5)
Moderate activities, such as moving a table, sweeping the floor, gardening, or bicycling	Yes, limited a lot	126 (33.0)
	Yes, limited a little	204 (53.4)
	No, not limited at all	52 (13.6)
Lifting or carrying groceries	Yes, limited a lot	122 (31.9)
	Yes, limited a little	181 (47.4)
	No, not limited at all	79 (20.7)
Climbing several flights of stairs	Yes, limited a lot	179 (46.9)
	Yes, limited a little	163 (42.7)
	No, not limited at all	40 (10.5)
Climbing one flight of stairs	Yes, limited a lot	105 (27.5)
	Yes, limited a little	207 (54.2)
	No, not limited at all	70 (18.5)
Bending, kneeling or stooping	Yes, limited a lot	118 (30.9)
	Yes, limited a little	165 (43.2)
	No, not limited at all	99 (25.9)
Walking more than a kilometer	Yes, limited a lot	143 (37.4)
	Yes, limited a little	144 (37.7)
	No, not limited at all	95 (24.9)
Walking several hundred meters	Yes, limited a lot	171 (44.8)
	Yes, limited a little	138 (36.1)
	No, not limited at all	73 (19.1)
Walking one hundred meters	Yes, limited a lot	80 (20.9)
	Yes, limited a little	190 (49.7)

	No, not limited at all	112 (29.3)
Bathing or dressing yourself	Yes, limited a lot	34 (8.9)
	Yes, limited a little	174 (45.5)
	No, not limited at all	174 (45.5)
Cut down on the amount of time you spent on work or other activities	Yes	238 (62.3)
	No	144 (37.7)
Role Physical		
Accomplished less than you would like	Yes	238 (62.3)
	No	144 (37.7)
Were limited in the kind of work or other activities	Yes	253 (66.2)
	No	129 (33.8)
Had difficulty performing the work or other activities (for example, it took extra effort)	Yes	271 (70.9)
	No	111 (29.1)
Bodily Pain		
How much bodily pain have you had during the past 4 weeks	None	27 (7.1)
	Very mild	39 (10.2)
	Mild	92 (24.1)
	Moderate	144 (37.7)
	Severe	61 (16.0)
	Very severe	19 (5.0)
During the past 4 weeks, how much did pain interfere with your normal work (including both work outside the home and housework)?	Not at all	18 (4.7)
	A little bit	79 (20.7)
	Moderately	158 (41.4)
	Quite a bit	87 (22.8)
	Extremely	40 (10.5)
General Health		

In general, would you say your health is	Excellent	18 (4.7)
	Very good	41 (10.7)
	Good	163 (42.7)
	Fair	136 (35.6)
	Poor	24 (6.3)
I seem to get sick a little easier than other people	Definitely true	22 (5.8)
	Mostly true	148 (38.7)
	Don't know	103 (27.0)
	Mostly false	95 (24.9)
	Definitely false	14 (3.7)
I am as healthy as anybody I know	Definitely true	14 (3.7)
	Mostly true	110 (28.8)
	Don't know	133 (34.8)
	Mostly false	114 (29.8)
	Definitely false	11 (2.9)
I expect my health to get worse	Definitely true	11 (2.9)
	Mostly true	111 (29.1)
	Don't know	159 (41.6)
	Mostly false	83 (21.7)
	Definitely false	18 (4.7)
My health is excellent	Definitely true	27 (7.1)
	Mostly true	112 (29.3)
	Don't know	67 (17.5)
	Mostly false	152 (39.8)
	Definitely false	24 (6.3)

Vitality		
Did you feel full of life?	All of the time	14 (3.7)
	Most of the time	54 (14.1)
	Some of the time	79 (20.7)
	A little of the time	155 (40.6)
	None of the time	80 (20.9)
Did you have a lot of energy?	All of the time	27 (7.1)
	Most of the time	68 (17.8)
	A Good bit of the time	83 (21.7)
	Some of the time	81 (21.2)
	A little of the time	93 (24.3)
	None of the time	30 (7.9)
Did you feel worn out?	All of the time	14 (3.7)
	Most of the time	47 (12.3)
	A Good bit of the time	82 (21.5)
	Some of the time	142 (37.2)
	A little of the time	72 (18.8)
	None of the time	25 (6.5)
Have you Been a Happy Person	All of the time	38 (9.9)
	Most of the time	92 (24.1)
	A Good bit of the time	78 (20.4)
	Some of the time	111 (29.1)
	A little of the time	56 (14.7)
	None of the time	7 (1.8)
	All of the time	37 (9.7)
Did you feel tired?	Most of the time	97 (25.4)
	A Good bit of the time	79 (20.7)
	Some of the time	110 (28.8)
	A little of the time	50 (13.1)
	None of the time	9 (2.4)

Social Functioning

During the past 4 weeks, to what extent has your physical health or emotional problems interfered with your normal social activities with family, friends, neighbors, or groups	Not at all	36 (9.4)
	Slightly	130 (34.0)
	Moderately	151 (39.5)
	Quite a bit	40 (10.5)
	Extremely	25 (6.5)
During the past 4 weeks, how much of the time has your physical health or emotional problems interfered with your social activities (like visiting with friends, relatives, etc)	All of the time	20 (5.2)
	Most of the time	123 (32.2)
	Some of the time	113 (29.6)
	A little of the time	95 (24.9)
	None of the time	31 (8.1)

Role Emotional

Cut down on the amount of time you spent on work or other activities	Yes	229 (59.9)
	No	153 (40.1)
Accomplished less than you would like	Yes	220 (57.6)
	No	162 (42.4)
Didn't do work or other activities less carefully than usual	Yes	243 (63.6)
	No	139 (36.4)

Mental Health

Have you been very nervous?	All of the time	16 (4.2)
	Most of the time	42 (11.0)
	A good bit of the time	79 (20.7)
	Some of the time	135 (35.3)
	A little of the time	82 (21.5)
Have you felt so sad and low in spirit that	None of the time	28 (7.3)
	All of the time	16 (4.2)

nothing could cheer you up?	Most of the time	38 (9.9)
	A good bit of the time	84 (22.0)
	Some of the time	114 (29.8)
	A little of the time	96 (25.1)
	None of the time	34 (8.9)
Have you felt calm and peaceful?	All of the time	37 (9.7)
	Most of the time	79 (20.7)
	A good bit of the time	75 (19.6)
	Some of the time	101 (26.4)
	A little of the time	85 (22.3)
Have you felt downhearted and depressed?	None of the time	5 (1.3)
	All of the time	4 (1.0)
	Most of the time	29 (7.6)
	A good bit of the time	50 (13.1)
	Some of the time	122 (31.9)
Have you been a happy person?	A little of the time	126 (33.0)
	None of the time	51 (13.4)
	All of the time	38 (9.9)
	Most of the time	92 (24.1)
	A good bit of the time	78 (20.4)
	Some of the time	111 (29.1)
	A little of the time	56 (14.7)
	None of the time	7 (1.8)

The results showed that respondents felt physical limitation extremely in terms of bathing (n= 77, 20.2 %), walking (n= 107, 28 %) and jogging (n= 155, 40.6%). CHF patients felt symptoms every morning in terms of swelling in feet (n= 18, 4.7 %), fatigue (n= 18, 4.7 %), shortness of breath (n= 11, 2.9 %), sleep sitting up every night (n = 13, 3.4 %). The

results showed that respondents felt social limitation due to CHF extremely in terms of enjoyment of life (n= 39, 10.2 %) and were not satisfied at all with spending the rest of their life with CHF (n= 70, 18.3 %). Moreover, the respondents felt quality of life severely limited in terms of hobbies (n= 77, 20.2 %), working (n = 107, 28 %) and visiting family (n = 155, 40.6 %). A detailed description is given (Table 4).

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Table 4 Assessment of Quality of Life among CHF Patients using KCCQ-12

Indicators	n (%)	
Physical Limitation		
How much you are limited by heart failure in your ability to do the following activities over the past 2 weeks		
Showering/bathing	Extremely Limited	77 (20.2)
	Quite a bit Limited	124 (32.5)
	Moderately Limited	50 (13.1)
	Slightly Limited	61 (16)
	Not at all Limited	63 (16.5)
	Limited for other reasons or did not do the activity	7 (1.8)
Walking 1 block on level ground	Extremely Limited	107 (28)
	Quite a bit Limited	115 (30.1)
	Moderately Limited	53 (13.9)
	Slightly Limited	56 (14.7)
	Not at all Limited	45 (11.8)
	Limited for other reasons or did not do the activity	6 (1.6)
Hurrying or jogging (as if to catch a bus)	Extremely Limited	155 (40.6)
	Quite a bit Limited	70 (18.3)
	Moderately Limited	64 (16.8)
	Slightly Limited	50 (13.1)

	Not at all Limited	32 (8.4)
	Limited for other reasons or did not do the activity	11 (2.8)
Symptoms		
Over the past 2 weeks, how many times did you have swelling in your feet, ankles or legs when you woke up in the morning?	Every morning	18 (4.7)
	3 or more times per week but not every day	59 (15.4)
	1-2 times per week	138 (36.1)
	Less than once a week	76 (19.9)
	Never over the past 2 weeks	91 (23.8)
Over the past 2 weeks, on average, how many times has fatigue limited your ability to do what you wanted?	All of the time	18 (4.7)
	Several times per day	60 (15.7)
	At least once a day	42 (11)
	3 or more times per week but not every day	58 (15.2)
	1-2 times per week	111 (29.1)
	Less than once a week	57 (14.9)
Over the past 2 weeks, on average, how many times has shortness of breath limited your ability to do what you wanted?	Never over the past 2 weeks	36 (9.4)
	All of the time	11 (2.9)
	Several times per day	36 (9.4)
	At least once a day	51 (13.4)
	3 or more times per week but not every day	70 (18.3)
	1-2 times per week	104 (27.2)
Over the past 2 weeks, on average, how many times have you been forced to sleep sitting up in a chair or with at least 3 pillows to prop	Less than once a week	56 (14.7)
	Never over the past 2 weeks	54 (14.1)
	Every night	13 (3.4)
	3 or more times per week but not every day	68 (17.8)

you up because of shortness of breath?	1-2 times per week	134 (35.1)
	Less than once a week	82 (21.5)
	Never over the past 2 weeks	85 (22.3)
Social Limitations		
Over the past 2 weeks, how much has your heart failure limited your enjoyment of life?	It has extremely limited my enjoyment of life	39 (10.2)
	It has limited my enjoyment of life quite a bit	111 (29.1)
	It has moderately limited my enjoyment of life	105 (27.5)
	It has slightly limited my enjoyment of life	83 (21.7)
	It has not limited my enjoyment of life at all	44 (11.5)
If you had to spend the rest of your life with your heart failure the way it is right now, how would you feel about this?	Not at all satisfied	70 (18.3)
	Mostly dissatisfied	140 (36.6)
	Somewhat satisfied	102 (26.7)
	Mostly satisfied	46 (12)
	Completely satisfied	24 (6.3)
Quality of Life		
How much does your heart failure affect your lifestyle? Please indicate how your heart failure may have limited your participation in the following activities over the past 2 weeks.		
Hobbies, recreational activities	Severely Limited	77 (20.2)
	Limited quite a bit	124 (32.5)
	Moderately Limited	50 (13.1)
	Slightly Limited	61 (16)
	Not at all Limited	63 (16.5)
	Does not apply or did not do for other reasons	7 (1.8)
Working or doing household	Extremely Limited	107 (28)

chores	Quite a bit Limited	115 (30.1)
	Moderately Limited	53 (13.9)
	Slightly Limited	56 (14.7)
	Not at all Limited	45 (11.8)
	Limited for other reasons or did not do the activity	6 (1.6)
Visiting family or friends out of your home	Extremely Limited	155 (40.6)
	Quite a bit Limited	70 (18.3)
	Moderately Limited	64 (16.8)
	Slightly Limited	50 (13.1)
	Not at all Limited	32 (8.4)
	Limited for other reasons or did not do the activity	11 (2.8)

Out of all the respondents, 16.2 % (n=62) felt tensed most of the time. While 38.7 % (n=148) reported that they had not quite so much enjoyed the things they used to enjoy. Of all the respondents, 13.4 % (n= 51) had a sort of frightened feeling very definitely and quite badly while 40.8 % (n= 156) had worrying thoughts a lot of the time (Table 5).

Table 5 Assessment of Depression among CHF Patients

Indicators		n (%)
I feel tense or wound up	Most of the time	62 (16.2)
	A lot of the time	151 (39.5)
	From time to time occasionally	121 (31.7)
	Not at all	48 (12.6)
I still enjoy the things I used to enjoy	Definitely as much	55 (14.4)
	Not Quite so much	148 (38.7)
	Only a little	148 (38.7)

	Not at all	31 (8.1)
I get a sort of frightened feeling as if something awful is about to happen	Very definitely and quite badly	51 (13.4)
	Yes, but not too badly	142 (37.2)
	A little, but it doesn't worry me	153 (40.1)
I can laugh and see the funny side of things	Not at all	36 (9.4)
	As much as I always could	82 (21.5)
	Not quite so much now	147 (38.5)
	Definitely not so much now	115 (30.1)
Worrying thoughts go through my Mind	Not at all	38 (9.9)
	A great deal of the time	38 (9.9)
	A lot of the time	156 (40.8)
	From time to time, but not too often	143 (37.4)
	Only occasionally	45 (11.8)
I feel cheerful	Not at all	52 (13.6)
	Not often	119 (31.2)
	Sometimes	169 (44.2)
	Most of the time	42 (11.0)
I can sit at ease and feel relaxed	Definitely	54 (14.1)
	Usually	165 (43.2)
	Not Often	138 (36.1)
	Not at all	25 (6.5)
I feel as if I am slowed down	Nearly all the time	52 (13.6)
	Very often	137 (35.9)
	Sometimes	168 (44.0)

	Not at all	25 (6.5)
I get a sort of frightened feeling like 'butterflies' in the stomach	Not at all	60 (15.7)
	Occasionally	136 (35.6)
	Quite Often	150 (39.3)
	Very Often	36 (9.4)
I have lost interest in my appearance	Definitely	48 (12.6)
	I don't take as much care as I should	153 (40.1)
	I may not take quite as much care	120 (31.4)
	I take just as much care as ever	61 (16.0)
I feel restless as I have to be on the Move	Very much indeed	48 (12.6)
	Quite a lot	153 (40.1)
	Not very much	154 (40.3)
	Not at all	27 (7.1)
I look forward with enjoyment to Things	As much as I ever did	55 (14.4)
	Rather less than I used to	151 (39.5)
	Definitely less than I used to	101 (26.4)
	Hardly at all	75 (19.6)
I get sudden feelings of panic	Very often indeed	42 (11.0)
	Quite often	137 (35.9)
	Not very often	169 (44.2)
	Not at all	34 (8.9)
I can enjoy a good book or radio or TV Program	Often	74 (19.4)
	Sometimes	104 (27.2)
	Not often	155 (40.6)
	Very seldom	49 (12.8)

A significant difference ($p \geq 0.05$) was seen in SF 36 scores according to gender, age and education. Females, age group 31-40 years and illiterate had comparatively low quality of life. Moreover, a significant difference ($p \geq 0.05$) was seen in KCCQ-12 scores according to age, income, and education. Age group 31-40 years, low-income group, and illiterate had comparatively low quality of life. Furthermore, a significant difference ($p \geq 0.05$) was seen in HADS scores according to stunting, income, and education. Patients without stunting procedures, low socioeconomic status, and illiterate were comparatively more depressed. A detailed description is given in (Table 6).

Table 6. Comparison of QoL and Depression by Demographic Characteristics

Demographics	SF 36 score				KCCQ-12 Score			HADS Score		
	n	Mean rank	Test statistics	P-value	Mean rank	Test statistics	P-value	Mean rank	Test statistics	P-value
Gender	Male= 251	197.08	13786.00 ^a	0.040	190.59	15665.00 ^a	0.785	185.10	14834.00 ^a	0.264
	Female= 131	172.91			187.35			198.20		
Setting	Urban= 146	198.04	15689.00 ^a	0.277	200.94	15412.00 ^a	0.124	179.17	15427.50 ^a	0.135
	Rural=236	184.13			183.15			196.79		
Age	20-30 yrs= 17	143.00	26.66 ^b	0.001	235.29	28.31 ^b	0.001	147.56	8.764 ^b	0.067
	31-40 yrs= 11	101.45			141.36			189.27		
	41-50 yrs= 102	226.22			214.77			174.47		
	51-60 yrs = 119	200.13			211.33			192.30		
	more than 60 yrs= 133	169.62			154.46			209.65		
Qualification	Illiterate=126	178.37	15.22 ^b	0.019	176.76	16.83 ^b	0.010	198.52	24.97 ^b	0.001
	Primary=91	297.40			193.03			210.18		
	Middle=91	179.98			180.86			203.04		
	Secondary = 85	233.85			211.96			138.19		

	Graduate = 51	155.33			249.88			176.74		
	Master = 21	216.75			273.75			101.27		
	Others = 8	138.67			14.33			104.83		
Income	Less than Rs 10,000 = 81	166.02	9.36 ^b	0.096	189.19	33.68 ^b	0.001	176.62	24.44 ^b	0.001
	10,000-20,000 = 69	193.45			174.62			200.64		
	21,000-30,000 = 129	195.41			175.30			201.83		
	31,000-40,000 = 69	192.69			191.55			214.33		
	41000-50000 = 14	255.93			329.96			78.14		
	More than 51000 = 20	195.95			256.95			145.35		
Stunting	yes= 156	198.09	16079.00 ^a	0.234	202.22	15597.50 ^a	0.086	205.83	15041.00 ^a	0.024
	no= 226	184.45			182.52			180.06		
	Mann-Whitney tests ^a ;				Kruskal-Wallis ^b		(p	≥		0.05)

Discussion

Congestive heart failure is a complex multisystemic syndrome causing increased morbidity and mortality as well as increased hospitalizations. The symptoms of heart failure severely impact the physical functioning as well as the mental health of an individual. The syndrome results in reduced quality of life as well as the development of depressive symptoms overall affecting the physical and social activities of patients. The results of the present study showed a major impact on several domains of QoL among CHF patients including physical & emotional limitations, social functioning, and pain. Similar results were observed in a study conducted in Brazil where the quality of life was most affected for physical symptoms. CHF patients were unable to perform their daily tasks due to worsening of symptoms [12]. Reduction in quality of life is one of the most common predictors of an increase in mortality as well as the frequency of hospitalization among heart failure patients. The present study reported that physical functioning was most affected and was limited for activities which were vigorous as well as daily activities. A study conducted in Korea showed that individuals with heart failure were unable to perform daily chores and had worsening of symptoms on performing activities [4].

Interventions aimed at reducing symptoms and progression of the disease can help in improving the quality of life and well-being of patients suffering from heart failure. In the domain of role physical, the results showed that CHF patients were of the view that they had to cut down on the amount of time spent in performing work. In the domain of bodily pain, the results of the study unveiled that most of the patients had body pain which interfered with their normal work activities. In the general health domain, the results of this current study showed that health was poor among CHF individuals without undergoing treatment. They felt low in terms of energy and

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social support. Similar results were obtained in a study conducted in Serbia where patients reported poor health and physical weakness due to heart failure [6].

KCCQ-12 is a specific tool used for the assessment of the quality of life among CHF patients. The results of this study revealed that the physical activities of most of the respondents were limited in terms of bathing, walking, and especially jogging. The patient's symptoms interfered with their routine activities. They had swelling in their ankle and felt fatigued quite often. However, shortness of breath and sitting on a chair while sleeping due to difficulty in breathing were the most common symptoms seen among most of the patients once a day. A study conducted in Ethiopia showed that females, had heart failure since more than 1 year and smokers had poor quality of life. The physical functioning was reduced due to symptoms and the majority had shortness of breath and edema [13].

Depression is one of the common consequence of heart failure resulting in poor health outcomes. The results of the current study showed that the social functioning was affected among CHF patients. Most of them felt limited in enjoying life due to their condition and most of them were not satisfied with spending their remaining life with their current condition. The quality of life among the CHF patients was highly compromised. Similar study conducted in Jordan showed that majority of the heart failure patients had reduced social activities and were depressed all the time [14]. Acute exacerbation of heart failure can lead to physical as well as emotional dysfunction of patients. The results of this study revealed that some amongst the CHF patients had little interest in appearance and sort of frightened feeling very frequently, very seldom enjoyed a book or radio or TV program, not very often felt restless, majority of the respondents had sudden panic feelings and worrisome thoughts and felt tensed most of the times. Severe depression was seen among CHF patients. Similar results were obtained in a study conducted in

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USA where individuals had poor emotional health and loss interest in social activities due to heart failure[15].Reduced **quality of life** along with depression can contribute to poor prognosis among heart failure patients. The results of the present study revealed females with CHF had comparatively low QoL and were more depressed. Moreover the patients were from urban setting and with better education level i.e. graduate had better QoL scores and less depression. Patients in whom stunting was done were less depressed. Similar results were obtained from a study conducted in Taiwan where majority of the females were depressed and had low **quality of life**. Patients with severe disease as well as presence of comorbidities had poor scores of QoL than other patients [16].

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Conclusion

The current study concluded that CHF patients had poor **quality of life** and severe depression. Several domains of QoL among CHF patients were compromised including physical limitations, emotional limitations, social functioning, and pain. For **the** general symptoms scale, shortness of breath and limitation in sleeping posture are the most commonly affected leading to compromised **quality of life**. Interventions must be designed with **a** focus on patient counselling tailored **with** the needs for improving quality of life and minimizing depression. Educational and psychological programs for improving patient awareness regarding risk factors, lifestyle modification, and medication adherence must be devised for CHF patients. Social support for CHF patients needs to be provided for improving their QoL and reducing depression.

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References

1. Park, C.L., J.H. Wortmann, and D. Edmondson, *Religious struggle as a predictor of subsequent mental and physical well-being in advanced heart failure patients*. Journal of Behavioral Medicine, 2011. **34**(6): p. 426-436.
2. **Bosworth, H.B., et al.**, *Congestive heart failure patients' perceptions of quality of life: the integration of physical and psychosocial factors*. Aging & mental health, 2004. **8**(1): p. 83-91.

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3. Marques de Sousa, M., et al., *QUALITY OF LIFE OF PATIENTS WITH HEART FAILURE: INTEGRATIVE REVIEW*. Journal of Nursing UFPE/Revista de Enfermagem UFPE, 2017. **11**(3).
4. Chu, S.H., et al., *Factors affecting quality of life in Korean patients with chronic heart failure*. Japan Journal of Nursing Science, 2014. **11**(1): p. 54-64.
5. Koirala, B., et al., *Heart failure self-care, factors influencing self-care and the relationship with health-related quality of life: A cross-sectional observational study*. Heliyon, 2020. **6**(2): p. e03412.
6. Erceg, P., et al., *Health-related quality of life in elderly patients hospitalized with chronic heart failure*. Clinical interventions in aging, 2013. **8**: p. 1539.
7. Rehman, S., et al., *Cardiovascular disease (CVD): assessment, prediction and policy implications*. BMC Public Health, 2021. **21**(1): p. 1-14.
8. Hashim, M., et al., *Quality of Life, Perceived Social Support and Death Anxiety Among People Having Cardiovascular Disorders: A Cross-Sectional Study*. Pakistan Journal of Medical & Health Sciences, 2022. **16**(04): p. 460-460.
9. Dastgeer, S. and M. Saleem, *Risk factors associated with depression among chronic heart failure patients in Pakistan; A Systematic Review*. Journal of Rawalpindi Medical College, 2021. **25**(2): p. 289-294.
10. Husain, M.I., et al., *Depression and congestive heart failure: A large prospective cohort study from Pakistan*. Journal of psychosomatic research, 2019. **120**: p. 46-52.
11. Ullah, A., et al., *Health related quality of life in systolic heart failure patients at tertiary care unit cardiology OPD Hayatabad Medical Complex Peshawar Pakistan*. Pakistan Journal of Public Health, 2020. **10**(3): p. 140-146.
12. Tinoco, J.d.M.V.P., et al., *Association between depressive symptoms and quality of life in outpatients and inpatients with heart failure*. Revista da Escola de Enfermagem da USP, 2021. **55**.
13. Yazew, K.G., et al., *Factors associated with depression among heart failure patients at cardiac follow-up clinics in northwest Ethiopia, 2017: a cross-Sectional Study*. Psychiatry Journal, 2019. **2019**.
14. AbuRuz, M.E., *Anxiety and depression predicted quality of life among patients with heart failure*. Journal of multidisciplinary healthcare, 2018. **11**: p. 367.
15. Butler, J., et al., *Empagliflozin, health status, and quality of life in patients with heart failure and preserved ejection fraction: the EMPEROR-preserved trial*. Circulation, 2022. **145**(3): p. 184-193.
16. Chen, T.-Y., et al., *Uncertainty and depressive symptoms as mediators of quality of life in patients with heart failure*. PloS one, 2018. **13**(11): p. e0205953.