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Assessment of quality of life in patients with heart failure in Khartoum state in 2022

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Abstract

Background: Heart failure is a chronic, progressive disease that seriously impacts patients' quality of life, influenced by several factors. Knowing how heart failure affects patients' quality of life and its associated factors is crucial for a better patient-centered approach and management. This study aimed to assess the quality of life in patients with heart failure attending the governmental hospitals specializing in heart diseases in Khartoum state, Sudan, in 2022.

Methods: This hospital-based descriptive cross-sectional study was conducted at the governmental hospitals specialized in heart diseases in Khartoum state from October 2022 to November 2022. A probability simple random sampling was applied, and the data were collected by face-to-face interviews method using the Short Form 36 Health Survey Questionnaire tool (SF-36). The data were analyzed using a statistical package for social sciences (SPSS) to find the correlation between the various variables. Ethical clearance was obtained from the University of Khartoum.

Results: The study included 107 patients with heart failure. The patients' quality of life was assessed in different domains, and the mean for each was calculated. Patients had poor quality of life in all domains of the SF-36 questionnaire (Short Form 36 Health Survey Questionnaire), especially in the physical health domain (mean score of 8.4 ±27.2). However, the highest mean was the mean of emotional health (62.6 ±48.2). The mean of social activities was moderate (31.3 ±40).

Conclusion: The study concluded that patients with heart failure in Khartoum state have poor quality of life in all domains of the SF-36 questionnaire.

Keywords: Heart failure, quality of life, physical health, emotional health, social health

Introduction

Heart failure is a chronic condition caused by a structural or functional decrease in the ability of the heart ventricle to fill or eject blood efficiently [1]. It results from most heart disorders and is a significant cause of morbidity and mortality [2]. It is one of the most serious problems for public health in terms of prevalence, morbidity, mortality, and healthcare utilization [3]. Heart failure becomes more common with age, especially after age 64. The disease affects at least 26 million individuals worldwide, and the rate is anticipated to increase by 46% by 2030 [1]. The probability of death in patients with modest

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symptoms is estimated to be 5-10% every year, rising to 30-40% in patients with severe disease [2]. Heart failure patients encounter various physical and mental symptoms, including dyspnea, fatigue, edema, issues with sleeping, depression, and chest pain. These symptoms impair patients' everyday physical and social activities, resulting in a low quality of life. Poor quality of life is associated with increased rates of hospitalization and death [4].

The World Health Organization defines the quality of life as an individual's perception of their position in life in the context of the culture and value systems in which they live and concerning their goals, expectations, standards, and concerns. It is a broad-ranging concept affected in a complex way by the person's physical health, psychological state, social relationships, and their relationship to salient features of the environment [5]. In medical care, quality of life has become a vital consequence [6]. Unfortunately, there has been little research on the quality of life of heart failure patients in Africa, particularly in Sudan. Analysis of quality of life can identify groups with poor quality of life. This can direct initiatives to improve their position and avoid more serious effects, allocate limited resources based on unmet requirements, drive strategic planning, and monitor the intervention. The purpose of this research was to assess the quality of life in heart failure patients, therefore helping healthcare providers use quality of life measures in clinical practice and improve the quality of healthcare services to fulfill the expectations and needs of these patients.

Methods

Study Design, Setting, And Sample

An observational descriptive cross-sectional study was conducted on patients admitted to the three governmental hospitals specializing in heart diseases in Khartoum state, the capital of Sudan. These are Al-Shaab Teaching hospital, Sudan Heart Center, and Ahmed Gasim hospital. The study was conducted from the beginning of October 2022 to the end of November 2022 and involved 107 patients selected by convenient sampling. The inclusion criteria were patients with heart failure who were 18 years old and above. Patients were excluded from the study if they refused to participate.

Data Collection Method & Tool

The study's purpose was explained to eligible patients, and those who gave consent to participate were interviewed face-to-face using the Short Form 36 Health Survey Questionnaire (SF-36). Patients were asked firstly about sociodemographic characteristics, including age, gender, and level of education. Then, patients were asked about clinical characteristics, including comorbidities, duration of heart failure, and medication intake. Followed by (SF-36) questions. (SF-36) is one of the most generally used quality-of-life scales worldwide, widely validated in different languages. It is a multicultural scale consisting of 36 questions and categorized into eight-domain profiles of scores: physical functioning (PF; 10 items), general health (GH; 5 items), role physical (i.e., role limitations due to the physical health problems, RP; 4 items), bodily pain (BP; 2 items), social functioning (SF; 2 items), vitality (VT; 4 items), role emotional (i.e., role limitations due to emotional problems, RE; 3 items), and mental health (MH; 5 items). 15 For each domain, a score ranging from 0 to 100 was assessed, with a higher score indicating better quality of life. The study was approved by the administration of training and research of the three cardiology hospitals. Each participant was required to give informed consent before participating in the research, and withdrawal was allowed at any moment.

Statistical Analysis

Data were initially entered and cleaned using Microsoft Excel, then analyzed using Statistical Package for Social Sciences (SPSS) version 25.0, descriptive statistics used, and categorical data. It is presented in the form of frequencies (n) and percentages (%), while numeric data is presented in the form of means +_ SD. An independent sample t-test and one-way ANOVA were used for inferential statistics, and a P value of < 0.05 was considered significant.

Scoring system: Every item had a set of options that scored with a value between 0 and 100, then scores of each domain were added together and divided by the number of items in each domain. Finally, we scored between 0 and 100 for each domain; the higher score reflects a better quality of life and vice versa.

Results

Sociodemographic characteristics

This study included 107 patients with heart failure in Khartoum state. Male and female participation in this study was almost equal. The mean age of participants was 54.6 years ± 16 SD, and the most common age group was 56-70 years (36.4%). Half of the patients (54.2%) were illiterate. Nearly two-thirds of the patients (66.4%) had one or more comorbid diseases, and the most common comorbid diseases were other cardiovascular system diseases (43.9%), followed by endocrine system problems (28%), while the least common comorbid diseases were nervous system diseases (2.8%). More details are shown in table 1 and Figure 1.

Clinical characteristics of heart failure

The mean duration of diagnosis with heart failure at the time of the study was 5.6 years ± 7.3. While all patients in this study were taking heart failure medications, (80.4%) were doing it regularly, while only (19.6%) were doing it irregularly (Figure 3). Patients rated their general health on

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Table 1: Sociodemographic characteristics of patients with heart failure in Khartoum state, 2022. (N = 107)

Variable	Subgroups	Total N	%
Gender	Male	53	49.5
	Female	54	50.5
Age groups	15 - 25 years	6	5.6
	26-40 years	13	12.1
	41 - 55 years	35	32.7
	56 – 70	39	36.4
	> 70 years	14	13.1
Educational level	Illiterate	58	54.2
	Primary school	26	24.3
	Secondary school	16	15
	University and above	7	6.5
Presence of comorbid	Yes	71	66.4
Diseases	No	36	33.6

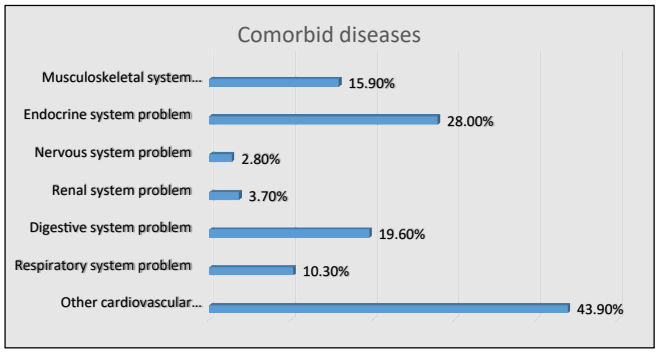

Figure 1: Percentage of comorbid diseases in patients with heart failure in Khartoum state, 2022 (N = 107)

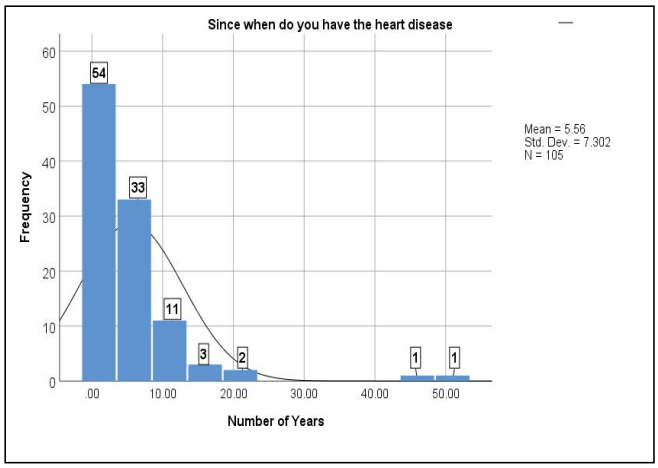

Figure 2: shows the duration of diagnosis of heart disease in patients with heart failure, Khartoum state, 2022 (N = 105)

a 6-level score, (11.2%) said that their health is excellent, (13.1%) rated it as very good, (44.9%) as good, (10.3%) as fair, and (20.6%) as poor (figure 4). Also, we asked patients to rate their health status compared to one year ago, (52.3%) said that it was much worse than one year ago, while (9.3%) said it was much better—figure 5.

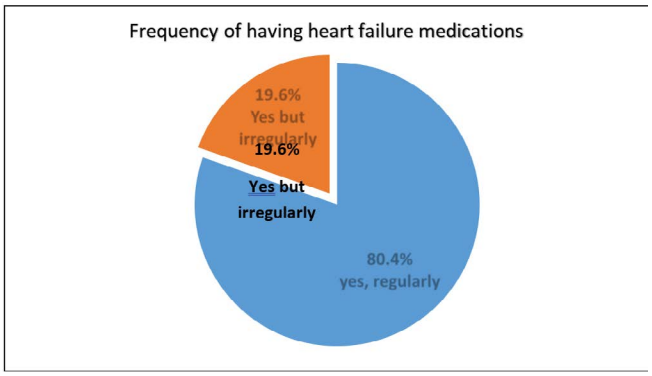

Figure 3: Frequency of having heart failure medications in patients with heart failure, Khartoum state, 2022 (N = 107).

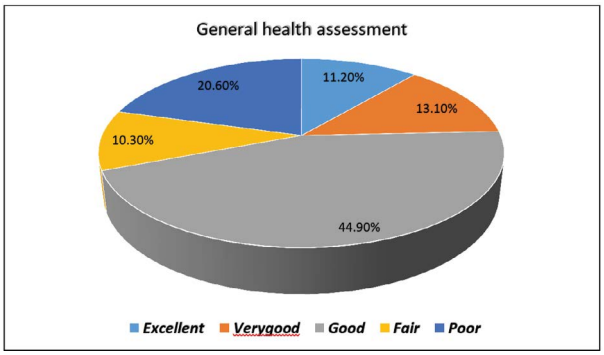

Figure 4: Rating of general health in patients with heart failure, Khartoum state, 2022 (N = 107)

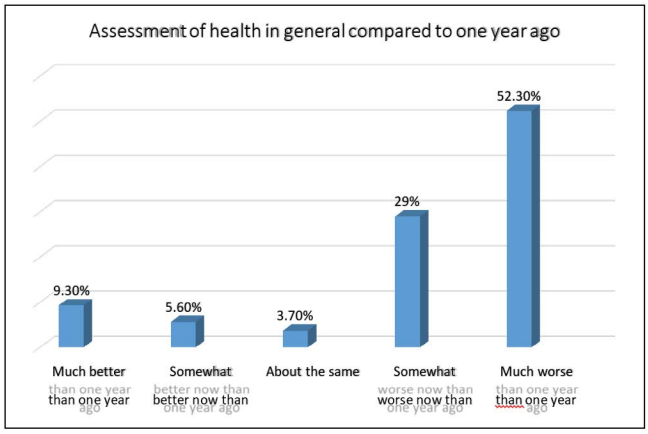

Figure 5: Rating of general health in patients with heart failure compared to one year ago, Khartoum state, 2022 (N = 107).

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Quality of life

We assessed patients' quality of life with heart failure in 6 domains; details of each part are shown in Tables 2-7. The mean of each domain was calculated; the highest was the mean of emotional health, reflecting a better quality of life (62.6 ± 48.2). On the other hand, the lowest mean was the mean of the physical health domain (8.4 ±27.2).

Table 2: Assessment of limitations of activities in patients with heart failure, Khartoum state, 2022 (N = 107).

Statement	*Yes, limited a lot*		*Yes, limited a little*		*No, not limited at all*	
	N	%	N	%	N	%
1. Vigorous activities, such as running, lifting heavy objects, participating in strenuous sports	100	93.5	3	2.8	4	3.7
2. Moderate activities, such as moving a table, pushing a vacuum cleaner, bowling, or playing golf	73	68.2	12	11.2	22	20.6
3. Lifting or carrying groceries	66	61.7	8	7.5	33	30.8
4. Climbing several flights of stairs	84	78.5	8	7.5	15	14
5. Climbing one flight of stairs	53	49.5	14	13.1	40	37.4
6. Bending, kneeling, or stooping	76	71	7	6.5	24	22.4
7. Walking more than a mile	101	94.5	1	0.9	5	4.7
8. Walking several blocks	97	90.7	3	2.8	7	6.5
9. Walking one block	53	49.5	27	25.2	27	25.2
10. Bathing or dressing yourself	44	41.1	10	9.3	53	49.5

Table 3: Assessment of pain in patients with heart failure, Khartoum state, 2022 (N = 107).

Statement	Answers	Total N	%
How much bodily pain have you had during the past 4 weeks?	None	45	42.1
	Very mild	7	6.5
	Mild	9	8.4
	Moderate	9	8.4
	Severe	5	4.7
	Very severe	32	29.9
During the past 4 weeks, how much did pain	Not at all	52	48.6
interfere with your normal work (including	A little bit	8	7.5
both work outside the home and housework)?	Moderately	10	9.3
	Quite a bit	4	3.7
	Extremely	33	30.8

Table 4: Assessment of physical health problems in patients with heart failure, Khartoum state, 2022 (N = 107)

During the past 4 weeks, had you have any of the following problems with your work or other regular daily activities as a result of your physical health?	Yes		No	
	N	%	N	%
A) Cut down the amount of time you spent on work or other activities	97	90.7	10	9.3
B) Accomplished less than you would like	98	91.6	9	8.4
C) Were limited in the kind of work or other activities	98	91.6	9	8.4
D) Had difficulty performing the work or other activities (for example, it took extra effort)	99	92.5	8	7.5

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Table 5: Assessment of emotional health problems in patients with heart failure, Khartoum state, 2022 (N = 107).

During the past 4 weeks, have you had any of the following problems with your work or other regular daily activities as a result any emotional problems (such as feeling depressed or anxious?	Yes		No	
	N	%	N	%
A) Cut down the amount of time you spent on work or other activities	39	36.4	68	63.6
B) Accomplished less than you would like	40	37.4	67	62.6
C) Didn't do work or other activities as carefully as usual	41	38.3	66	61.7

Table 6: Assessment of energy and emotions in patients with heart failure, Khartoum state, 2022. (N = 107).

During the last 4 weeks:	All of the time		Most of the time		A good bit of the time		Some of the time		A little bit of the time		None of the time	
	N	%	N	%	N	%	N	%	N	%	N	%
1. You feel full of pep?	6	5.6	11	10 3	8	7.5	39	36 4	15	14	28	26.2
2. Have you been a very nervous person?	7	6.5	4	3.7	2	1.9	35	32 7	7	6.5	52	48.6
3. Have you felt so down in the dumps that nothing could cheer you up?	6	5.6	5	7.4	2	1.9	47	43 9	8	7.5	39	36.4
4. Have you felt calm and peaceful?	26	24.3	9	8.4	3	2.8	50	46 7	8	7.5	11	10.3
5. Did you have a lot of energy?	5	4.7	15	14	6	5.6	40	37 4	14	13.1	27	25.2
6. Have you felt downhearted and blue?	8	7.5	6	5.6	5	4.7	38	35 5	8	7.5	42	39.3
7. Did you feel worn out?	31	29	18	16 8	8	7.5	38	35 5	6	5.6	6	5.6
8. Have you been a happy person?	41	38.3	13	12 1	4	3.7	34	31 8	8	7.5	7	6.5
9. Did you feel tired?	30	28	18	16 8	7	6.5	39	36 4	6	5.6	7	6.5

Table 7: Assessment of social activities in patients with heart failure, Khartoum state, 2022 (N= 107)

Statement	Answers	N	%
During the past 4 weeks, how much of the time	All of the time	57	53.3
has your physical health or emotional problems	Most of the time	12	11.2
interfered with your social activities (like			
visiting with friends, relatives, etc.)?	Some of the time	14	13.1
	A little bit of the time	2	1.9
	None of the time	22	20.6

Table 8: Assessment of patient's quality of life in (limitations of activity, pain, and physical health) domains according to their sociodemographic characteristics (N ± 107)

Domain	Mean	SD	Minimum	Maximum
Limitations of activity	25.84	24.5	0	100
Pain	58.2	43.7	0	100
Physical	8.4	27.2	0	100
Energy and emotions	53.5	20	4.44	100
Emotional health problem	62.6	48.2	0	100
Social activities	31.3	40	0	100

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Table 9: Assessment of patients' quality of life in (limitations of activity, pain, and physical health) domains according to their sociodemographic characteristics (N ± 107).

Variable	Subgroups	Limitations of activity		pain		Physical health	
		N ± SD	P value	N ± SD	P value	N ± SD	P value
Gender	Male	28.4 ±22.3	.29	63.9 ± 44	.18	10.8 ± 30.8	.36
	Female	23.4± 26.4		52.6 ± 43		6 ± 23.3	
Age	15 - 25 years	16.67± 21	.67	46.3± 47.7	.72	0	.62
	26-40 years	21.2±19.8		44.6±46		0	
	41 - 55 years	29.4±30.2		61.7±42.5		8.6±26.4	
	56 - 70	24.5±22.3		61.2±43		10.3±30.7	
	> 70 years	29±19.8		58.9±47.7		14.3±36.3	
Educational level	Illiterate	21.8± 22.8	.04	52.9± 44.5	.36	5.2± 22.3	.43
	Primary school	27.9± 24.6		58.4± 44.8		8.7± 27.4	
	Secondary school	26.9± 21.4		74.4± 35.7		17.2±37.3	
	University and above	49.3± 33.5		65 ± 47		14.3± 37.8	
Presence of Comorbid Disease	Yes	24.9 ±23.6	.57	57 ±42.6	.7	10 ±29	.4
	No	27.7± 26.3		60.5 ±46.1		5.4± 23	
Duration of heart failure	1-2 years	23.8± 24.1	.4	48.9± 45.8	.18	6.5± 25	.9
	3-10 years	28.9± 26.2		65.1± 42.7		8.2± 26.2	
	> 10 years	19.5± 17.4		63± 39.7		9.1± 30.2	

Table 10: Assessment of patients' quality of life in (energy, emotional health, and social activities) domains according to their sociodemographic characteristics (N ± 107)

Variable	Subgroups	Energy health		Emotions health		Social activities	
		N	P value	N	P	N	P value
Gender	Male	55.5± 19	.3	69.2 ±46	.16	32 ±39.4	.8
	Female	51.5±20.7		56.2 ±49.7		30.6 ±40.8	
Age	15 - 25 years	45.9± 28	.1	66.7±51.6	.06	4.2±10.2	.021
	26-40 years	52.6±17.4		61.5±50.6		7.7±15.8	
	41 - 55 years	49.9±20.2		43.8±49.7		32.9± 40.1	
	56 - 70	53.7±17.6		76.1±42.5		43.6± 43.2	
	> 70 years	66 ±21.6		71.4±46.9		26.8±40.9	
Educational level	Illiterate	55.7± 19.8	.17	63.8± 47.7	.29	30.2± 39.1	.37
	Primary school	53.9±20		731± 45.2		28.9± 40.4	
	Secondary school	43.4±20.3		43.8± 51.2		28.1± 35.2	
	University and Above	56.8±16		57.1± 53.5		57.1± 53.5	
Presence of Comorbid disease	Yes	55.9 ± 19	.38	62 ±48.6	.83	34.6 ± 42.4	.2
	No	52.3 ± 20		64 ±48		25 ± 34.4	
Duration of heart failure	1-2 years	51.7± 21.4	.6	64.5± 47.9	.9	28.3± 41	.7
	3-10 years	54.3± 19.4		59.9± 49.1		35.2± 39.8	
	> 10 years	58.2± 17.6		63.6± 50.5		29.5± 29.5	

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Factors affecting quality of life

The mean quality of life score varied according to patients' essential characteristics. However, the only statistically significant difference was the difference in limitations of the activity domain based on patients' educational level (P= .04). Also, the social activities domain differed significantly according to patients' age group (P= .021). Table 9, 10.

Discussion

This study included 107 patients with heart failure in Khartoum state. The overall response rate was 71%. In the analysis of this study, results showed that patients with heart failure had lower quality of life regarding all domains of the SF-36 questionnaire, especially in the physical health domain (mean score of 8.4 ±27.2), a finding congruent with other previous studies [8]. The mean of each domain was calculated in this study; the highest mean was the mean of emotional health, reflecting a better quality of life (62.6 ± 48.2). On the other hand, the lowest mean was the physical health domain (8.4 ±27.2), and the mean of social activities was moderate (31.3 ±40). All these mean scores were lower than a previous study conducted in Cyprus [10]. The analysis of sociodemographic data showed that almost all males and females participated equally in this study. This differs from a study conducted in Saudi Arabia, where most respondents were male (80%, n = 197) [12]. The mean age of participants was 54.6 years ± 16 SD; this mean was not far from the mean age reported in a previous study [7]. Half of the patients (54.2%) were illiterate, not far from an earlier study conducted in Ethiopia [12]. 66.4% of patients had one or more comorbidities. This is lower than a previous study conducted in Saudi Arabia showed that nearly three-quarters of the patients (73%) had one or more comorbidities [9]. There is no significant association between gender, educational level, comorbidities, and duration of heart failure with physical health problems, emotional health problems, and social activities in patients with heart failure (P value > 0.05). Compared to other studies, two previous studies showed an association between quality of life and gender [11, 13]. Another study conducted in the Kingdom of Bahrain showed that there is a significant association between educational level and quality of life (P value < 0.05) [13]. In another previous study, results showed a significant association between the presence of comorbidities and the patients' quality of life (p=0.001) [14]. Finally, a study conducted in Taiwan showed that there is an insignificant association between the duration of heart failure and quality of life in these patients (P value > 0.050) [15]. However, the association was significant between age and social activities (P value < 0.05). This is similar to a previous study conducted in Cyprus, which showed a significant association between the age and social activities of the patients [28]. However, the association was insignificant between age and physical and emotional health problems in patients with heart failure (P value > 0.05), which is different from the previous study results [10].

Conclusion

This study was conducted in Khartoum state among patients with heart failure and concluded that the quality of life of these patients was poor in the physical health domain (8.4), moderate in the social activities domain (31.3), and relatively good in the emotional health domain (62.6). Some of the sociodemographic factors (gender and educational level) and clinical factors (presence of comorbidities) were found to be associated with the quality of life among heart failure patients.

Recommendations

Based on the findings of this study, the following recommendations are suggested

1. Periodic quality of life assessment is recommended for heart failure patients to minimize their physical, emotional, and social concerns.
2. Approaches should be developed to effectively manage physical, psychological and social factors to improve the quality of life of heart failure patients.
3. Developing and providing intervention programs for heart failure patients to enhance their social activities can improve their quality of life.

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