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EFFECT OF SELF-CARE ON HEALTH RELATED QUALITY OF LIFE (HRQoL) AMONG HEART FAILURE PATIENTS

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ABSTRACT

Background

Heart failure is a chronic disorder that significantly affects patients' functional status and health-related quality of life. Effective self-care is essential for symptom control and improved outcomes, yet many patients demonstrate inadequate self-care behaviors.

Aim

To evaluate the effect of a structured self-care intervention on health-related quality of life among patients with heart failure.

Methods

A quasi-experimental pre–post study was conducted among 104 heart failure patients admitted to the cardiac ward of Liaquat University Hospital, Hyderabad. Data were collected using the Self-Care of Heart Failure Index (SCHFI v6.2) and the Minnesota Living with Heart Failure Questionnaire (MLHFQ). A structured, nurse-led self-care education program was delivered, and outcomes were assessed four weeks post-intervention.

Results

Significant improvements were observed in self-care maintenance, management, and confidence following the intervention ($p < 0.001$). Health-related quality of life improved significantly across physical, emotional, and social domains ($p < 0.05$).

Conclusion

Structured self-care education significantly improves self-care behaviors and health-related quality of life in patients with heart failure and should be integrated into routine nursing practice.

Keywords

Heart failure, Quality of life, Nursing intervention; Patient education, Quasi-experimental study.

INTRODUCTION

Cardiovascular diseases (CVDs) refer to a group of conditions affecting the heart and blood vessels, including conditions such as coronary artery disease, stroke, hypertension, and peripheral artery disease.[1] These conditions lead to poor quality of life and severe health complications, such as heart attacks, strokes, heart failure, and arrhythmias, and often result in long-term disability.[2] Heart failure (HF) is a chronic, progressive clinical syndrome in which the heart is unable to pump sufficient blood to meet the body's physiological demands.[3] It constitutes a major global public health concern affecting an estimated 64 million individuals worldwide, with prevalence expected to rise due to aging populations, improved survival from

cardiac events, and increasing non-communicable disease risk factors.[4] The trajectory of heart failure is often unpredictable, characterized by alternating periods of stability and acute decompensation.[5] Such fluctuations place tremendous physical and emotional demands on patients, necessitating constant symptom vigilance.[6] self-care is conceptualized not merely as adherence but as an active, ongoing cognitive and behavioral process that patients must internalize and integrate into their everyday lives.[7] Self-care in heart failure is not a singular behavior but a multidimensional construct involving lifestyle modifications, cognitive decision-making, emotional regulation, and effective interaction with the healthcare system.[8] For example, behavioral components include maintaining a low-sodium diet, adhering to medication schedules, limiting fluid intake, and engaging in appropriate physical activity.[9] Cognitive components involve recognizing early signs of fluid overload, distinguishing between normal and abnormal fatigue, and understanding when to adjust behaviors or seek professional care.[10] Emotional elements include the ability to cope with chronic illness, manage anxiety, and maintain motivation despite setbacks.[11] Because of these interdependent dimensions, deficits in one area can undermine overall self-care success.[12] This complexity underscores why traditional patient education, often limited to brief verbal instructions, has minimal impact without reinforcement, personalization, and hands-on guidance.[13] Heart failure (HF) is a long-lasting disorder with high morbidity, hospitalization rates, and poor quality of life. Although treatment can never be ignored, it is becoming more important that patients can adhere to self-care principles, such as taking medication, keeping a healthy diet, managing symptoms, and making lifestyle changes. Structured interventions of self-care have been proven to enhance HRQoL, decrease hospital readmissions, and improve prognosis in general. Nevertheless, harsh conditions like low self-efficacy, psychological distress, cultural beliefs, and patient education tend to prevent adherence. A quasi-experimental pre-post design will help to examine the self-care programs, considering the measurement of the HRQoL before and after intervention to give evidence of the impact of the self-care programs in the real world. This strategy is in line with Sustainable Development Goal 3: Good Health and Well-Being, which focuses on the need to decrease premature deaths due to non-communicable diseases (NCDs) and on promoting healthy living in general. This research can be used to design culturally sensitive interventions grounded in skills, increase self-care adherence, and enhance HRQoL, and also form part of a broader approach to public health, as NCDs begin to represent a rising burden.

AIM

- To evaluate the effect of a structured self-care intervention on the health-related quality of life (HRQoL) among patients with heart failure.

OBJECTIVES

1. To assess the baseline self-care practices of heart failure patients before the intervention.
2. To measure the baseline health-related quality of life (HRQoL) of heart failure patients.
3. To implement a structured self-care education program
4. To evaluate changes in self-care practices among heart failure patients after the intervention.

Methodology

Study Setting

The present study was conducted at Liaquat University Hospital (LUH), Hyderabad, Sindh, Pakistan.

Study design

In this study, the pre-post quasi-experimental design was applied to investigate the effects of a structured self-care intervention on the health-related quality of life among heart failure patients.

Sampling technique

This study used a non-probability convenience sampling method to identify the participants.

Sample Size

- **n: 104**

The sample size for this study was calculated using a moderate effect size (Cohen's d = 0.5), a

significance level of 0.05, and a power of 80%, the minimum required sample size was calculated using the paired t-test formula.

Inclusion Criteria

- Adults aged 18 years and older diagnosed with heart failure (NYHA Class II-IV)
- Ability to provide informed consent

Exclusion Criteria

- Severe mental health problem
- Patient with HF has less than one month of hospitalization
- Any malignancy

Data Collection Tools

The data to be used in this work were gathered at the intersection of demographics and two standardized questionnaires Self-Care of Heart Failure Index (SCHFI v6.2) and Minnesota Living with Heart Failure Questionnaire (MLHFQ). The selection of these tools was based on their reliability, validity, and relevance in measuring self-care behaviors and health-related quality of life of patients with heart failure.

Results

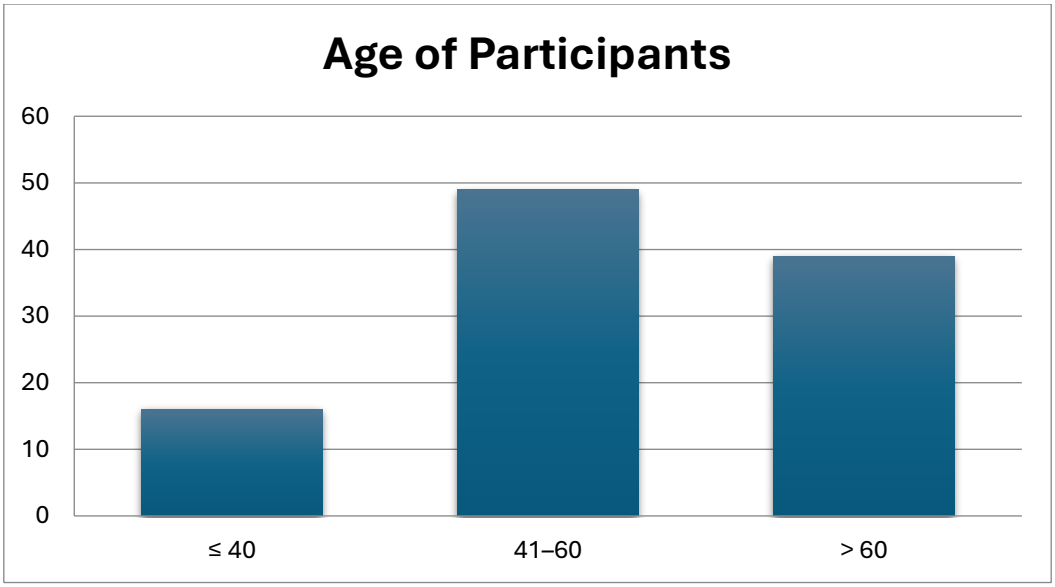

Figure 1. Distribution of age of participnats

Figure 1 illustrates the age distribution of the study participants. The results show that the majority of participants belonged to the 41–60 years age group, which constituted the largest proportion of the sample.

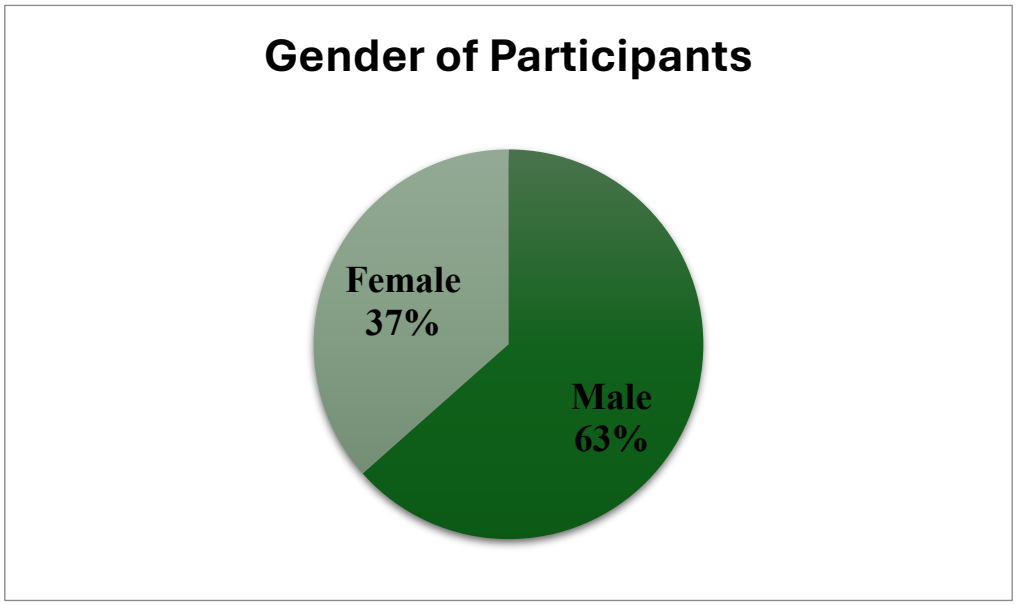

Figure 2. Gender distribution of participants

Figure 2 presents the gender distribution of the study participants. The findings indicate that **male participants constituted the majority of the sample (63%),** while **female participants accounted for 37%** of the total study population.

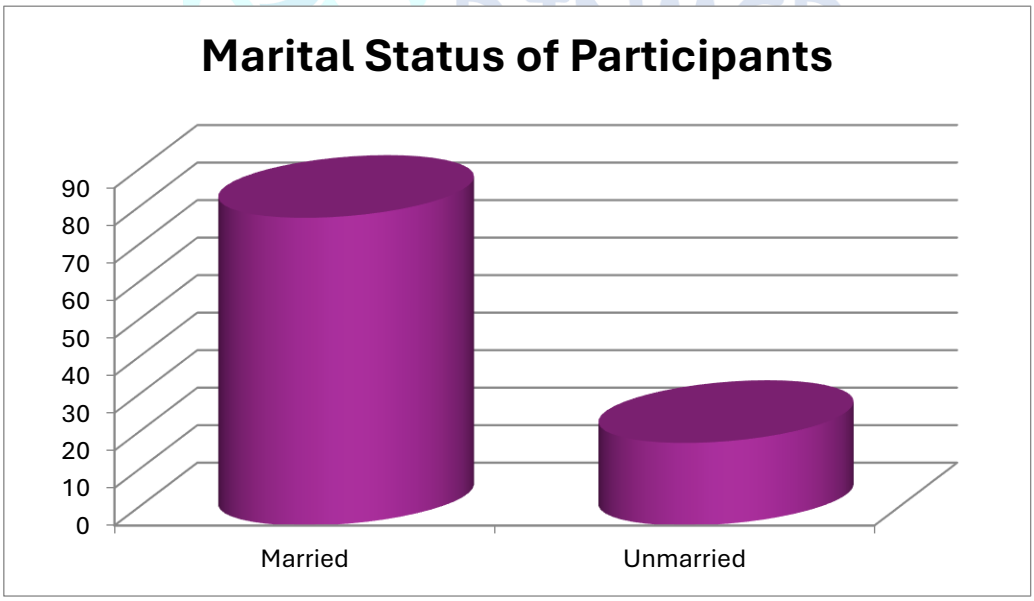

Figure 3. Distribution of Marital Status of Participants

Figure 3 revealed that the majority were married. This indicates that most individuals diagnosed with heart failure in the study were living with a spouse, suggesting the presence of potential family support systems.

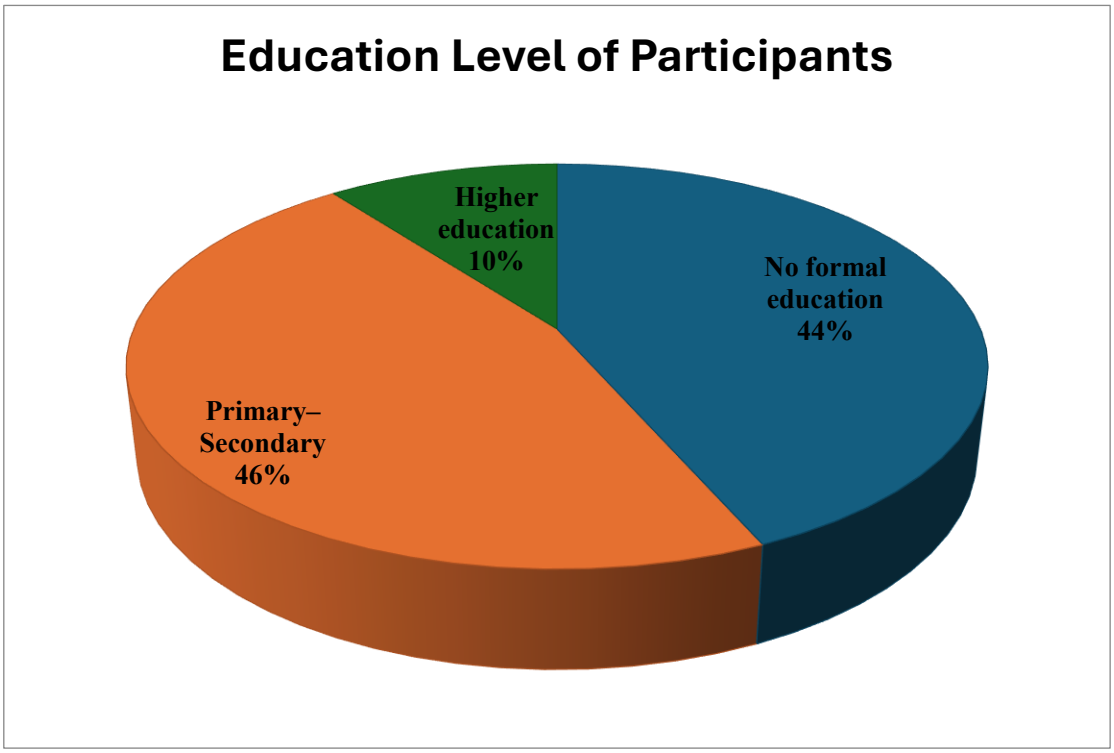

Figure 4. Distribution of education level of participants

Figure 4 demonstrated a wide range of educational attainment among the participants. A substantial proportion had received only primary or secondary level education, while fewer participants had attained higher education. This distribution suggests that a significant number of patients had limited formal education, which may have implications for health literacy and understanding of disease management.

Table 1. Distribution of New York Heart Assoiation (NYHA) classification and Co-Morbidites of Participants

Variable	Category	Frequency (n)	Percentage (%)
NYHA Class	II	16	42.1
	III	18	47.4
	IV	4	10.5
Comorbidities	Hypertension	26	68.4
	Diabetes Mellitus	21	55.3
	COPD	9	23.7

Table 2 demonstrates that the majority falling within Class II and Class III. This indicates that most patients experienced mild to moderate limitations in physical activity due to heart failure symptoms. A smaller proportion of participants were classified as NYHA Class IV, reflecting severe functional impairment and symptoms at rest. The predominance of patients in NYHA Class II and III suggests that many participants were at a stage where structured self-care interventions could play a critical role in symptom management and quality of life improvement. In terms of comorbidities, hypertension was the most frequently reported condition among the participants, followed by diabetes mellitus and chronic obstructive pulmonary disease (COPD). The high prevalence of hypertension and diabetes reflects common cardiovascular risk profiles in patients with heart failure.

Table 2 Percentage Improvement in Health related quality of Life (HRQoL) Domains after Intervention

HRQoL Domain	Pre Mean	Post Mean	Improvement
Physical	32.4	22.1	31.8%
Emotional	17.6	11.8	33.0%
Social	9.3	6.1	34.4%
Overall HRQoL	**59.3**	**40.0**	**32.6%**

Table 2 shows the percentage change in various areas of Health-Related Quality of Life after the intervention. These results show that there is a significant improvement in all the domains measured. The physical domain indicated an average decrease of the score from 32.4 at the beginning of the intervention to 22.1 at the end of the intervention, which is 31.8 percent. On the same note, the emotional domain increased by 33.0 percent; that is, a lot of well-being was achieved by increasing the mean from 17.6 to 11.8. The greatest percentage change has been recorded in social functioning, as the scores have dropped by 9.3 to 6.1, representing a 34.4% change. Generally, there was significant improvement in HRQoL as the mean score reduced to 40.0 with a improve on 59.3, which is an improvement of 32.6. These findings indicate that the intervention was effective and significantly relevant to the quality of life of participants in the physical, emotional, and social aspects.

Table 3 Comparison of Pre- and Post-Intervention Self-Care of heart failure index (SCHFI v6.2)

Self-Care Domain	Pre-Intervention Mean ± SD	Post-Intervention Mean ± SD	Mean Difference	t-value	p-value
Self-Care Maintenance	49.6 ± 8.2	68.4 ± 7.5	18.8	12.6	<0.001
Self-Care Management	46.1 ± 9.4	66.9 ± 8.1	20.8	13.1	<0.001
Self-Care Confidence	43.8 ± 10.1	71.2 ± 7.3	27.4	15.4	<0.001

Table 3 illustrates the comparison of pre- and post-intervention self-care scores across the three domains of the Self-Care of Heart Failure Index (SCHFI v6.2). The results show that there is a great enhancement in every self-care area after the intervention. The mean score within the domain of self-care maintenance was 49.6 ± 8.2 at the pre-intervention stage and increased to 68.4 ± 7.5 at the post-intervention stage with a mean difference of 18.8 that was statistically significant ($t = 12.6$, $p < 0.001$). There was also a significant improvement in the self-care management domain, where the score improved to 66.9 ± 8.1 compared to the initial 46.1 ± 9.4, which resulted in the mean difference of 20.8 ($t = 13.1$, $p = 0.001$). The greatest improvement was experienced under the self-care confidence area, with the mean score rising by 27.4 ($t = 15.4$, $p < 0.001$) pre- and post-intervention (43.8 ± 10.1 and 71.2 ± 7.3, respectively). Such findings suggest that the intervention was very effective in improving self-care maintenance, management, and confidence of participants, with all the changes becoming statistically significant.

Table 4 Comparison of Pre- and Post-Intervention health related quality of life (HRQoL) Scores

HRQoL Dimension	Pre-Intervention Mean ± SD	Post-Intervention Mean ± SD	Mean Difference	t-value	p-value
Physical Domain	32.4 ± 6.9	22.1 ± 5.8	−10.3	11.9	<0.001
Emotional Domain	17.6 ± 5.1	11.8 ± 4.2	−5.8	9.2	<0.001
Social Domain	9.3 ± 3.7	6.1 ± 2.9	−3.2	7.1	<0.01
Total Score	**59.3 ± 10.8**	**40.0 ± 9.6**	**−19.3**	**13.7**	**<0.001**

Table 4 presents a comparison of pre- and post-intervention scores on the Minnesota Living with Heart Failure Questionnaire (MLHFQ), highlighting the impact of the intervention on various HRQoL dimensions. The results demonstrate significant improvements across all domains. The physical domain score decreased from 32.4 ± 6.9 pre-intervention to 22.1 ± 5.8 post-intervention, with a mean difference of −10.3, indicating a statistically significant improvement ($t = 11.9$, $p < 0.001$). The emotional domain also improved, with scores reducing from 17.6 ± 5.1 to 11.8 ± 4.2, corresponding to a mean difference of −5.8 ($t = 9.2$, $p < 0.001$). Social functioning showed a meaningful decrease from 9.3 ± 3.7 to 6.1 ± 2.9, with a mean difference of −3.2 ($t = 7.1$, $p < 0.001$). Overall, the total MLHFQ score declined significantly from 59.3 ± 10.8 pre-intervention to 40.0 ± 9.6 post-intervention, yielding a mean difference of −19.3 ($t = 13.7$, $p < 0.001$). These findings indicate that the intervention led to a substantial and statistically significant improvement in physical, emotional, and social aspects of HRQoL, reflecting an overall enhancement in participants' quality of life.

Discussion

The demographic profile of participants reflects the typical clinical population affected by heart failure, with the majority being middle-aged to older adults and predominantly male. This is consistent with recent epidemiological data indicating that heart failure prevalence increases with age and remains higher among men, particularly in South Asian populations.[14,15] The most pronounced improvement was observed in self-care confidence. This finding is particularly important, as self-care confidence reflects self-efficacy, a key psychological construct influencing long-term behavior change. Recent evidence indicates that confidence in managing one's illness is a stronger predictor of sustained self-care and quality of life than knowledge alone.[16] The physical domain demonstrated substantial improvement, reflecting reduced symptom burden, improved functional capacity, and better daily performance. Effective self-care behaviors, particularly medication adherence and early symptom recognition, are known to stabilize clinical status and reduce physical limitations in heart failure patients.[17] The overall reduction in total MLHFQ scores confirms that the intervention had a comprehensive and positive impact on participants' lives. These findings are aligned with studies, which consistently demonstrate that structured self-care education leads to significant improvements in HRQoL among heart failure patients.[18]

Conclusion

The study has shown that the failure of patients with heart failure to engage in proper self-care practices and low health-related quality of life preceded the intervention. Self-care maintenance, management, and confidence improved significantly after the introduction of a structured self-care education program. Significant improvement in health-related quality of life in physical, emotional, and social areas was made in the intervention. To sum up, the research met its goals and found that structured self-care education led by nurses is an efficient and convenient method of enhancing self-care and quality of life among patients with heart failure.

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