



ORIGINAL

## Assessing the Effectiveness of Health Promotion in Enhancing Quality of Life in Heart Failure Patients

### Evaluación de la eficacia de la promoción de la salud para mejorar la calidad de vida de los pacientes con insuficiencia cardíaca

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**Cite as:** Renuka JS, Behera SK, Singh I, Soni SL. Assessing the Effectiveness of Health Promotion in Enhancing Quality of Life in Heart Failure Patients. Health Leadership and Quality of Life. 2022; 1:112. <https://doi.org/10.56294/hl2022112>

Submitted: 08-08-2022

Revised: 26-10-2022

Accepted: 12-12-2022

Published: 13-12-2022

Editor: PhD. Prof. Neela Satheesh 

#### ABSTRACT

Heart failure (HF) is a chronic and debilitating condition that adversely affects patients' quality of life (QoL). While health promotion interventions, particularly self-management strategies, are widely acknowledged as potential tools for improving QoL in HF patients, existing studies have yielded mixed results, with limited evidence on long-term effectiveness. Prior research on health promotion interventions for HF patients often suffers from small sample sizes, short follow-up periods, and inconsistent measures of QoL. Furthermore, many studies have not fully integrated multidimensional approaches, considering both physical and psychosocial aspects of health. A randomized controlled trial (RCT) was conducted with sixty HF patients and randomly allocated to either an intervention group (int grp) or a control group (Ctrl grp) through stratified block sampling. The int grp received a six-stage self-management promotion model, encompassing education on medication adherence, physical activity, dietary modifications, and psychosocial support. QoL was assessed using the structured questionnaire for HF patients at three-time points: baseline, immediate post-intervention, and one-month post-intervention. Statistical analysis involving ANOVA revealed significant improvement in the socioeconomic subscale scores of the HF questionnaire within the int grp. However, no significant differences were observed between the int grp and ctrl grp across the other subscales or the overall QoL score at any of the three-time points ( $p < 0.05$ ). The self-management promotion model results in significant improvements in the overall QoL of HF patients.

**Keywords:** Heart Failure (HF); Structured Questionnaire; Quality of Life (QoL); Self-Management Promotion Model.

#### RESUMEN

La insuficiencia cardíaca (IC) es una enfermedad crónica y debilitante que afecta negativamente a la calidad de vida de los pacientes. Aunque las intervenciones de promoción de la salud, en particular las estrategias de autocuidado, están ampliamente reconocidas como herramientas potenciales para mejorar la CdV de los pacientes con IC, los estudios existentes han arrojado resultados dispares, con pruebas limitadas sobre la eficacia a largo plazo. Las investigaciones previas sobre intervenciones de promoción de la salud para pacientes con IC a menudo adolecen de tamaños de muestra pequeños, periodos de seguimiento cortos y mediciones inconsistentes de la CdV. Además, muchos estudios no han integrado plenamente enfoques multidimensionales, teniendo en cuenta tanto los aspectos físicos como psicosociales de la salud. Se realizó un ensayo controlado aleatorizado (ECA) con sesenta pacientes con IC y se les asignó aleatoriamente a un grupo de intervención (grp int) o a un grupo de control (grp Ctrl) mediante un muestreo estratificado por bloques.

El grupo int recibió un modelo de promoción de la autogestión de seis etapas, que abarcaba la educación sobre el cumplimiento de la medicación, la actividad física, las modificaciones dietéticas y el apoyo psicosocial. La calidad de vida se evaluó mediante el cuestionario estructurado para pacientes con IC en tres momentos: al inicio, inmediatamente después y un mes después de la intervención. El análisis estadístico mediante ANOVA reveló una mejora significativa en las puntuaciones de la subescala socioeconómica del cuestionario de IC dentro del grupo int. Sin embargo, no se observaron diferencias significativas entre el grupo int y el grupo ctrl en las demás subescalas ni en la puntuación global de la CdV en ninguno de los tres momentos ( $p < 0,05$ ). El modelo de promoción del autocontrol produce mejoras significativas en la CdV global de los pacientes con IC.

**Palabras clave:** Insuficiencia Cardíaca (IC); Cuestionario Estructurado; Calidad de Vida (CdV); Modelo de Promoción de la Autogestión.

## INTRODUCTION

A leading cause of death and morbidity, heart failure (HF) is a growing public health issue. When the heart cannot pump enough blood to the body, it is called HF. This is typically brought on by high blood pressure, diabetes, or other heart diseases.<sup>(1)</sup> Many HF patients experience reduced functional ability, a low quality of life (QoL), and early death despite evidence-based treatments.<sup>(2)</sup> The fight against HF is placing an unprecedented financial strain on the healthcare system, and symptoms can range from asymptomatic to significantly impairing functioning. Estimation of prognosis in HF is essential because patients who are at a higher threat of adverse effects can gain from more frequent monitoring and aggressive treatment.<sup>(3)</sup> Though advances in medical treatment have improved survival rates, most HF patients continue to enjoy a poor QoL because of the long-term effects of their condition. This has highlighted the need for holistic approaches that go beyond clinical interventions to address the broader aspects of living with HF.<sup>(4)</sup>

Therefore, health promotion has been a critical consequence in improving patients' outcomes and has focused more on empowering such patients to cope with their situation and lead healthy, productive, and fulfilling lives. Unlike conventional medical care, the approach of health promotion focuses on proactive lifestyle change, self-care practices, and psychosocial support rather than symptom management alone. These interventions are to allow patients to actively manage their conditions, thereby ultimately improving their QoL while reducing the burden on the healthcare systems.<sup>(5)</sup> Educational programs, behavioral interventions, and psychosocial support are critical health promotion approaches for HF. The educational intervention empowers the patient with important knowledge about the condition, which includes medication compliance, dietary guidance, and maintaining regular exercise. Behavioral interventions promote healthier behaviors, including increased smoking cessation, stress management, and physical activity. Psychosocial support, through counseling or peer support groups, addresses the emotional challenges of living with HF, such as anxiety, depression, and social isolation.<sup>(6)</sup>

Technology-based approaches, such as telehealth and apps, also allow further growth in terms of reach and accessibility for health promotion programs, making them more inclusive and adaptive to the needs of individuals.<sup>(7)</sup> As health promotion strategies in HF care continue to move forward, several challenges have been identified. Socioeconomic factors, healthcare disparities, and variations in patient adherence limit the effectiveness of these interventions. In addition, the heterogeneity of HF patients in terms of age, disease severity, and comorbidities requires individual approaches to ensure successful outcomes. An effective measurement tool for the impact of health promotion on QoL has to be comprehensive and robust to capture the extent of physical, emotional, and social outcomes.<sup>(8)</sup>

Telemonitoring dramatically enhanced the health-related QoL (HRQoL) of 382 HF patients.<sup>(9)</sup> It used some scales and HRQoL using the EuroQol five dimensions questionnaire (EQ-5D) to determine functional status. The scores on the scale were not raised by telemonitoring. According to these results, telemonitoring helps HF patients' functional status and HRQoL. In Spain, the responsiveness of the questionnaire was evaluated using the Minnesota Living with HF Questionnaire (MLHFQ).<sup>(10)</sup> 1211 patients participated in the trial and answered the questionnaire both at baseline and six months after being released from the hospital. The findings demonstrated that the MLHFQ significantly affected QoL, with worsened patients experiencing losses, improved patients experiencing higher gains, and the same patients seeing lower gains. A meta-analysis found that mineralocorticoid receptor antagonists (MRAs) improved Left ventricular (LV) diastolic function in HF with conserved ejection fraction (HFpEF) patients, but did not lead to enhanced exercise capacity or QoL.<sup>(11)</sup>

The association between 90-day hospital readmissions in older patients with HF, activities of daily living (ADL), and nutritional condition was investigated.<sup>(12)</sup> According to the results, the readmission and non-readmission groups differed significantly in their body mass index (BMI), and hemoglobin. Additionally, some scores were found to be predictive of readmission within ninety days of discharge. Patients had a considerably decreased

readmission avoidance rate. HF patients were more likely to experience cognitive impairment if patients have both physical frailty and depression, according to a South Korean research.<sup>(13)</sup> In cardiology outpatient clinics, 27,3 % of patients had cognitive impairment. The need for healthcare providers to understand the vulnerable demographic that had both physical frailty and depression was emphasized. The opinions of HF patients, medical professionals, and caregivers, about individual experiences, obstacles, and perceived needs, to the best possible care were investigated in a 2018 research carried out in Slovenia.<sup>(14)</sup> The results showed that limits, shifts in family responsibilities, and unpleasant emotional reactions were common subjects. Traditional food, lack of confidence, financial hardships, and lifestyle changes were all obstacles to self-care.

An educational intervention that affected depression and HF patients in rural areas was assessed.<sup>(15)</sup> The findings indicated that while self-care and knowledge about HF were enhanced in both intervention groups (int grp), health-related QoL was not. In individuals with depressed symptoms, no intervention effects were seen, and there were no variations in HRQOL between groups.

To evaluated health literacy, depression, self-care maintenance, Self-care, and confidence of HF Index (C-SCHF).<sup>(16)</sup> The findings established a negative correlation among self-care management and depression, upholding, and confidence. The association among depression and self-care management was arbitrated by confidence and health literacy.

The goal of the research is to assess how well a six-stage self-management promotion model can improve HF patient's QoL. long-term effects were evaluated, and offer evidence for integrating multifaceted health promotion initiatives into clinical practice by addressing physical, emotional, and socioeconomic elements. The organization of the analysis: The next part explains the methodology section and then the result was provided. Next section gives the discussion and conclusion.

## METHOD

This section outlines the methodology, including participant selection through stratified block sampling, the design of the Intervention group (int grp) and control group (ctrl grp), and the evaluation of QoL using specific variables. It also details the data analysis process, to assess differences in QoL scores between groups at different time points. The Flow of methodology is illustrated in figure 1.

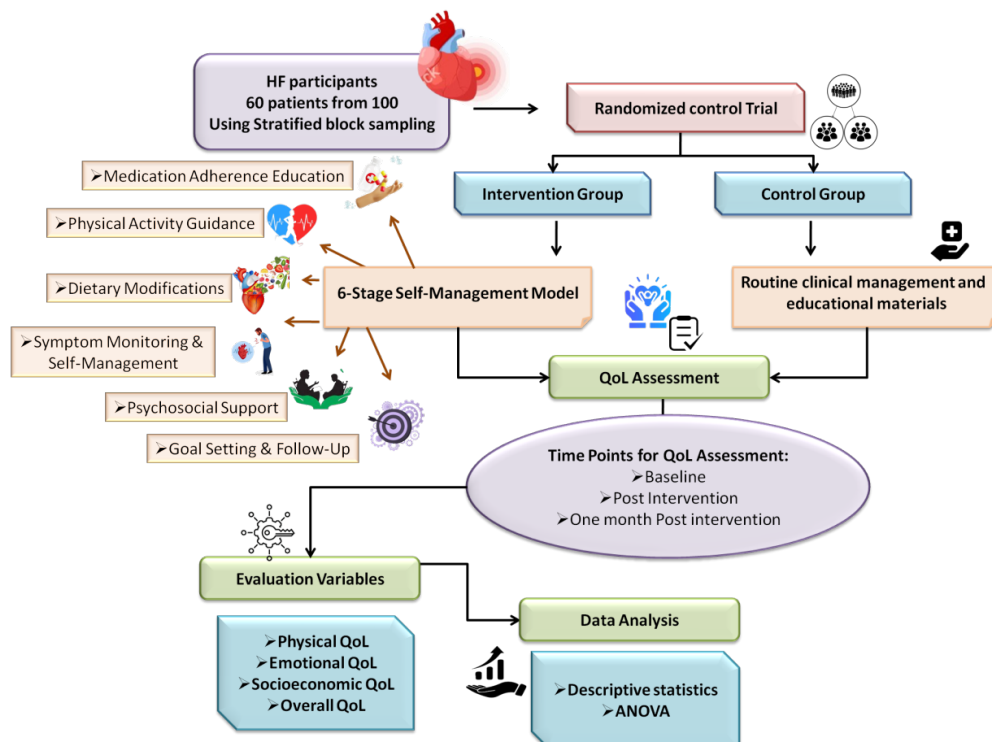


Figure 1. Method flow

## Sample Selection

For this investigation, a total of 100 HF patients were initially considered. Using a stratified block sampling technique, a representative sample that captures the variability of the HF patient population was guaranteed. Using important factors like age, gender, and the severity of the disease, this approach separates the total patient population into discrete subgroups. 60 patients were selected for the final research from the 100-patient

based on these filtered criteria, lowering potential biases and enabling a more accurate comparison between the groups. This sampling strategy improved the research sample's representativeness and made it possible to extrapolate the findings to a larger group of HF patients with different clinical and sociodemographic characteristics.

### Participants Detail

Sixty HF patients divided equally into two groups: Int grp (30) and Ctrl grp(30). The patients were selected using structured survey. Table 1 provides the detailed demographic of the participants.

Demographic Characteristic		Int Grp (n = 30)	Ctrl Grp (n = 30)
Age (mean $\pm$ SD)		65,4 $\pm$ 8,2 years	66,1 $\pm$ 7,5 years
Sex	Female	14 (46,7 %)	13 (43,3 %)
	Male	16 (53,3 %)	17 (56,7 %)
	Mild	14 (46,7 %)	13 (43,3 %)
Disease Severity	Moderate	12 (40 %)	14 (46,7 %)
	Severe	4 (13,3 %)	3 (10 %)
Comorbidities	Hypertension	18 (60 %)	19 (63,3 %)
	Diabetes	12 (40 %)	14 (46,7 %)
Educational Level	High school	8 (26,7 %)	9 (30 %)
	College/University	22 (73,3 %)	21 (70 %)
Living Situation	Alone	7 (23,3 %)	8 (26,7 %)
	With family	23(76,7%)	22(73,3%)

### Randomized Controlled Trial (RCT)

The efficiency of the self-management promotion strategy in raising HF patients' QoL is assessed using an RCT design. Thirty patients each were randomly allocated to the int grp or ctrl groups out of 60 selected patients. Because each participant had an equal chance of being allocated to either group, the random allocation reduced selection bias and improved the reproducibility of results. Figure 2 illustrate the RCT.

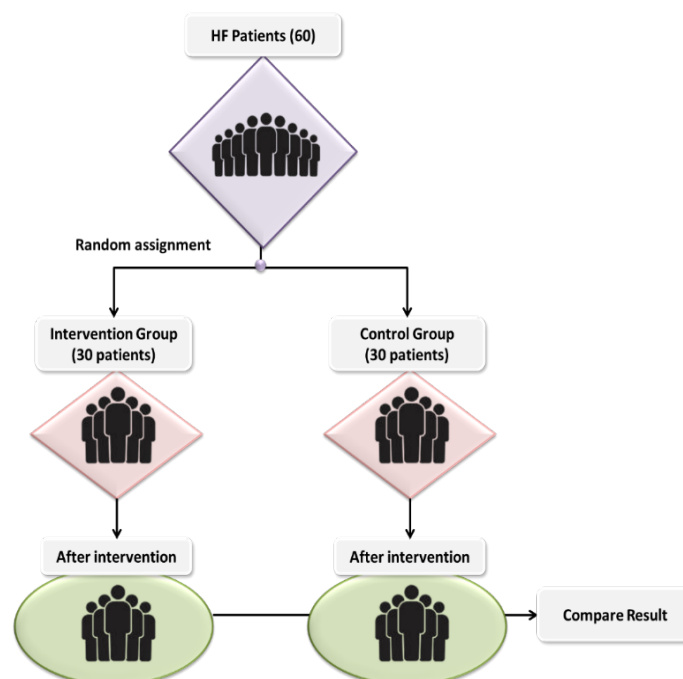


Figure 2. Randomized Control Trial illustration

### Int Grp

A six-stage self-management promotion model was given to the int group to enhance their QoL. The goal of this all-inclusive paradigm was to emphasize both physical and mental health while addressing all facets of life with HF. The intervention's six phases were given below.

**Medication Adherence Education:** participants received tailored counseling on medication types, possible adverse effects, appropriate dosages, and the significance of following prescribed regimens to enhance their comprehension and adherence to prescribed medications, which are essential in controlling HF. Additionally, resources like medication schedules and reminders were included.

**Physical Activity Guidance:** to encourage exercise while adhering to HF's restrictions to enhance cardiovascular health and general function. A customized workout regimen was created, beginning with easy exercises like walking and escalating in difficulty as needed. The program focused on strength training and cardiovascular exercises, which are good for HF patients.

**Dietary Modifications:** to promote heart health by diet, with an emphasis on a nutritious, low-sodium diet. Participants received education on healthy eating habits, such as how to increase fiber, decrease sodium intake, and have a balanced diet. Weekly meal plans and dishes catered to their dietary requirements were sent to them.

**Symptom Monitoring and Self-Management:** to enable people to keep an eye on their symptoms so patients can make better decisions about whether to get help. Instruction on observing symptoms daily (such as weight changes, edema, and dyspnea) and instructing patients on when and how to contact their healthcare professional for assistance.

**Psychosocial Support:** addressing the psychological and emotional effects of HF can have a substantial impact on a patient's general health. Stress, anxiety, despair, and emotional distress were addressed through weekly group or individual counseling sessions. Additionally, coping mechanisms and relaxation techniques were provided.

**Goal Setting and Follow-Up:** to increase participation in the intervention and provide them with a sense of control over their health. Participants received guidance on how to develop objectives about their health-related habits. Follow-up conversations were conducted to assess progress, provide assistance, and discuss any issues.

### Ctrl Grp

The Ctrl grp received standard care, which included routine medical management, periodic consultations, and access to general educational materials on HF management. These patients did not participate in the structured self-management program provided to the int grp. This allowed contrasting the effectiveness of the targeted self-management intervention with the standard care approach.

### Research Instruments

QUESTIONNAIRE FOR HF PATIENTS	
<p><b>1. Socioeconomic Impact</b></p> <p><b>Financial Burden:</b></p> <ol style="list-style-type: none"> <li>1. I feel financially strained due to my heart failure treatment.</li> <li>2. My ability to work or earn an income has been significantly affected by my condition.</li> <li>3. I can afford the medications and treatments needed to manage my heart failure.</li> </ol> <p><b>Social Support:</b></p> <ol style="list-style-type: none"> <li>4. I feel that my family and friends provide sufficient support for managing my condition.</li> <li>5. My condition has negatively impacted my social relationships and interactions.</li> </ol> <p><b>Access to Care:</b></p> <ol style="list-style-type: none"> <li>6. I find it easy to access healthcare services for my heart failure management.</li> <li>7. Transportation to medical appointments or treatments is a challenge for me.</li> </ol> <p><b>2. Emotional Impact</b></p> <p><b>Mental Well-being:</b></p> <ol style="list-style-type: none"> <li>8. I often feel anxious or worried about my heart failure.</li> <li>9. My condition makes me feel isolated or alone.</li> <li>10. I feel confident in my ability to manage my heart failure.</li> </ol> <p><b>Coping and Stress:</b></p> <ol style="list-style-type: none"> <li>11. I have difficulty coping with the emotional stress of my condition.</li> <li>12. I feel hopeful about my future despite living with heart failure.</li> </ol>	<p><b>3. Physical Impact</b></p> <p><b>Symptom Burden:</b></p> <ol style="list-style-type: none"> <li>13. I experience fatigue that limits my daily activities.</li> <li>14. My shortness of breath makes it difficult to perform physical tasks.</li> <li>15. I often feel physical pain or discomfort related to my heart failure.</li> </ol> <p><b>Activity Limitations:</b></p> <ol style="list-style-type: none"> <li>16. I have trouble climbing stairs or walking due to my condition.</li> <li>17. I avoid physical activities because of fear of worsening my symptoms.</li> <li>18. I feel that my physical health limits my ability to enjoy life.</li> </ol> <p><b>4. Overall Quality of Life</b></p> <p><b>General Perception:</b></p> <ol style="list-style-type: none"> <li>19. My overall quality of life has been negatively affected by heart failure.</li> <li>20. I feel satisfied with the overall care and support I receive for my condition.</li> <li>21. My heart failure prevents me from living life the way I want.</li> </ol> <p><b>Life Satisfaction:</b></p> <ol style="list-style-type: none"> <li>22. I am able to enjoy meaningful activities despite my condition.</li> <li>23. I feel that my treatment plan effectively improves my quality of life.</li> <li>24. My current lifestyle is fulfilling, even with heart failure.</li> </ol>

Figure 3. Questionnaire for assessing QoL of HF patients



QoL was assessed using a structured questionnaire consists of 24 questions with 5 point Likert scale (Never, rarely, sometimes, often, and always) tailored for HF patients at three critical time points.

Baseline: the initial assessment, conducted before the intervention began, served as the starting point to capture the patient's pre-intervention QoL levels.

Post-Intervention: the second assessment occurred immediately after the completion of the intervention program, enabling an evaluation of the immediate impact of the health promotion strategies on the patient's QoL.

Follow-Up: a third assessment was conducted one-month post-intervention to gauge the sustainability of the intervention's effects over time and examine whether improvements in QoL were maintained.

These time points allowed for an inclusive analysis of the short-term and potential long-term consequences of the health promotion intervention on HF patients' QoL. The structured questionnaire is provided in figure 3.

## Evaluation Variables

Four major variables were used in this research to evaluate QoL of socioeconomic, emotional, physical and overall QoL. Every category offered a thorough analysis of how the self-management promotion paradigm affected different facets of the patients' lives.

Physical: evaluated the patient's physical health, including their general physical health, exercise tolerance, ability to carry out daily tasks, and medication adherence. Improvements in physical health brought about by the intervention would indicate a successful outcome because physical restrictions are frequently a major obstacle to maintaining a good QoL in HF patients.

Emotional: the emotional domain concentrates on the patient's psychological and emotional states, including stress, worry, and depression associated with their medical condition. It was anticipated that interventions targeted at enhancing emotional well-being (such as psychological support) would improve this element of QoL, as HF frequently results in emotional pain.

Socioeconomic: evaluated things including job position, financial stability, and the capacity to control medical expenses. Financial stress can have a detrimental impact on QoL in individuals with long-term illnesses. Thus, the goal of the intervention was to increase patients' self-assurance in handling their illness, which may help their socioeconomic status by perhaps lowering hospital stays or health-related.

Overall QoL: taking into account the psychological and physical effects of HF, this category offered a comprehensive evaluation of the patient's general health. The patient's perception of their health and overall QoL is reflected in the overall QoL score, which is a composite measure. It was assessed using the questionnaire, which also recorded the patients' perceived health condition and the impact of HF on day-to-day living.

## Data Analysis

Using SPSS software, data analysis was carried out. To begin, descriptive statistics were computed to compile the participants' demographic and baseline characteristics. Analysis of variance (ANOVA) was to evaluate the variations in QoL scores among the int grp and ctrl grp at various intervals.

Descriptive statistics: it is a subfield of statistics that focus on resourcefully and methodically arranging, compressing, and displaying data. Without any conclusions or extrapolating to a broader population, it concentrates on characterizing and evaluating the key elements.

ANOVA: a statistical test used to assess the degree of difference among the average of more than two groups is used (Equation 1). ANOVA essentially makes it possible to contrast arithmetic means between groups simultaneously. ANOVA can determine if the observed differences reflect actual, meaningful changes or are the product of random chance.

$$F = \frac{MST}{MSE} \quad (1)$$

(Note: MST and MSE stand for the Mean sum of squares due to treatment and error respectively; F-ANOVA coefficient)

## RESULTS

The descriptive statistics and ANOVA results for physical, emotional, socioeconomic, and overall QoL scores at three-time points are provided in this section. These analysis help to assess the impact of the intervention on various QoL domains across the int and ctrl grp. Figure 4 presents the questionnaire response percentages for physical, emotional, socioeconomic, and overall QoL at three-time points. The responses indicate improvements in all domains, suggesting that the self-management intervention had a positive result on the patient's QoL, with benefits maintained at follow-up.

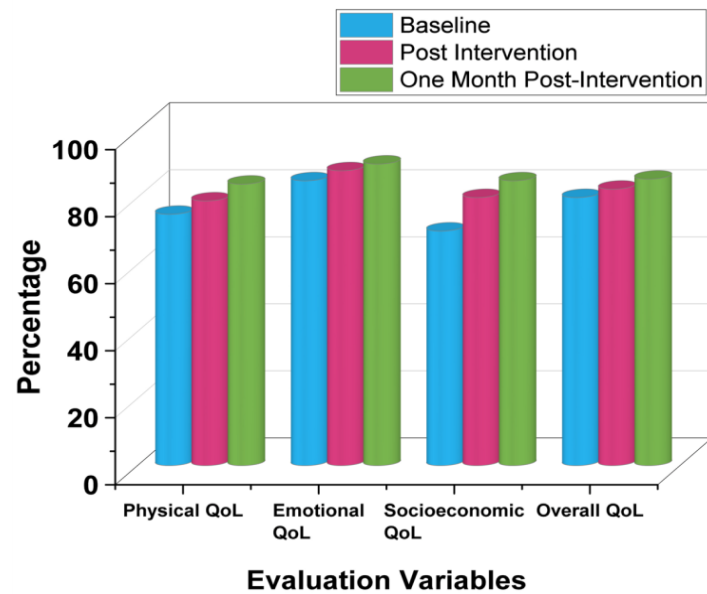


Figure 4. Questionnaire responses showing percentage improvement in QoL across four domains

### Descriptive Statistics

Table 2. Descriptive Statistics for QoL Scores at three-time points

Evaluation Variable	Group	Baseline	Post-Intervention	One month post intervention
Physical QoL	Intervention	45,3 ± 12,1	39,2 ± 10,4	38,5 ± 11,2
	Control	46,0 ± 13,2	45,8 ± 12,8	46,3 ± 13,1
Emotional QoL	Intervention	28,1 ± 9,7	22,3 ± 8,5	20,4 ± 7,9
	Control	27,5 ± 10,2	26,9 ± 9,6	27,3 ± 10,1
Socioeconomic QoL	Intervention	30,0 ± 8,4	24,7 ± 7,3	23,6 ± 6,9
	Control	31,2 ± 7,9	30,5 ± 8,2	31,0 ± 7,8
Overall QoL	Intervention	103,4 ± 28,4	86,2 ± 27,0	82,5 ± 25,1
	Control	104,7 ± 29,1	103,2 ± 28,5	104,6 ± 29,0

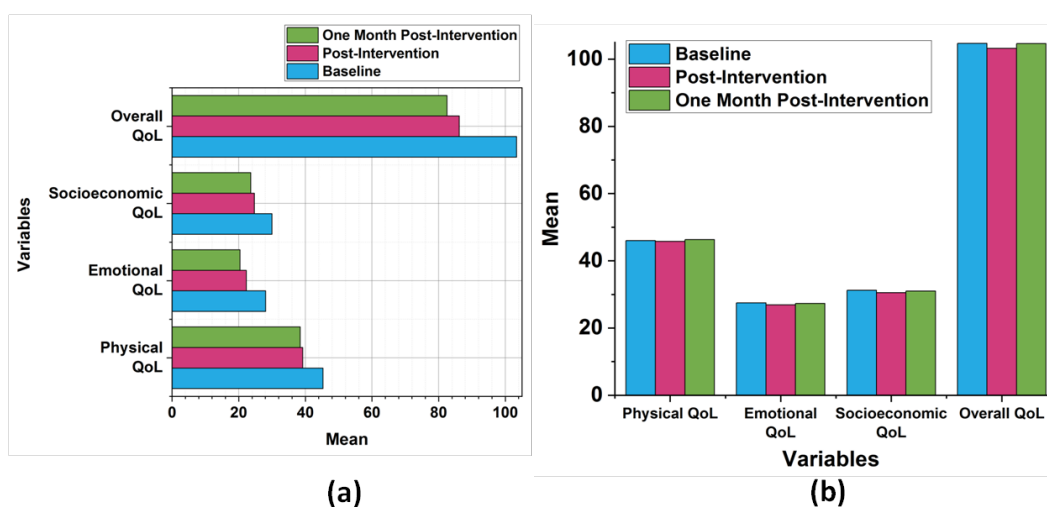


Figure 5. Mean score of (a) Int Grp and (b) Ctrl Grp

Table 2 provides the descriptive statistics for the QoL subscales (Physical, Emotional, and Socioeconomic) and overall QoL at three-time points for both the int grp and ctrl grp. In the int grp, physical QoL decreased mean from 45,3 at baseline to 39,2 post-intervention and slightly further to 38,5 at one month post intervention,

indicating a gradual decline in physical health. On the other hand, the ctrl grp showed relatively stable physical QoL mean (46,0 at baseline, 45,8 post-intervention, and 46,3 at one month post intervention). For emotional QoL, the int grp demonstrated a significant improvement, with scores dropping mean from 28,1 at baseline to 22,3 post-intervention and further to 20,4 at one month post intervention, suggesting that the intervention positively impacted emotional well-being. The ctrl grp's emotional QoL remained relatively unchanged, moving from 27,5 at baseline to 27,3 at follow-up 22,3 postintervention. Regarding socioeconomic QoL (mean), the intervention group experienced a decline from 30,0 at baseline, 24,7 at post intervention and 23,6 at one month post intervention, while the ctrl grp's scores fluctuated slightly but remained largely constant. Finally, overall QoL scores in the int grp reduced from 103,4 at baseline to 86,2 at post intervention and to 82,5 at one month post intervention, showing a general decline, which could be attributed to changes in the physical and socioeconomic subscales. The ctrl grp's overall QoL remained nearly unchanged throughout the research period. Figure 5 gives the graphical representation of the mean score of Int grp and Ctrl grp.

### ANOVA Result

Table 3 displays the results of the ANOVA comparing QoL scores among the groups. The analysis reveals significant differences for physical QoL, with an  $F(8,56)$  and a p-measure of 0,0005, representing that the intervention had a measurable effect on physical QoL. Similarly, emotional QoL also proved a significant variation, with an  $F(4,72)$  and a p-measure of 0,014, signifying that the intervention had a positive effect on emotional well-being. However, the socioeconomic QoL subscale did not give a significant difference, with an  $F(3,01)$  and a p-measure of 0,057, representing that the intervention did not significantly improve this aspect of QoL. Finally, the overall QoL also gave a significant difference, with an  $F(9,24)$  and a p-measure of 0,0003, reflecting that the intervention had a significant impact on overall QoL, particularly driven by improvements in physical and emotional subscales.

Table 3. ANOVA Results for QoL Subscales

Evaluation Variable	Source	SS	df	MS	F-Statistic (F)	p-measure	Interpretation
Physical QoL	Between groups	350,2	2	175,1	8,56	0,0005	Significant
	Within groups	1350	57	23,68			
	Total	1700	59				
Emotional QoL	Between groups	180,4	2	90,2	4,72	0,014	Significant
	Within groups	1150	57	20,18			
	Total	1330	59				
Socioeconomic QoL	Between groups	140,5	2	70,25	3,01	0,057	Not Significant
	Within groups	1140	57	20,00			
	Total	1280	59				
Overall QoL	Between groups	475,3	2	237,65	9,24	0,0003	Significant
	Within groups	1800	57	31,58			
	Total	2275	59				

Note: MS - Mean square; SS- Sum of square; df - degrees of freedom

### DISCUSSION

A structured self-management promotion paradigm may be useful in enhancing HF patients' QoL, especially in the emotional and physical domains. The value of including education on medication adherence, physical activity, and psychological support in health promotion efforts is shown by the int grp's notable gains in both physical and emotional QoL. These enhancements are consistent with the body of research that indicates focused interventions can enable patients to successfully manage their conditions. However, the lack of discernible progress in socioeconomic QoL would suggest that stronger support systems are required to deal with social and financial issues. While initial advantages are evident, the long-term sustainability of these gains merits more investigation, as evidenced by the lack of significant variation in overall QoL among the int grp and ctrl grp at particular periods. These findings highlight the necessity of incorporating multifaceted and long-term strategies to completely capture and improve heart failure patients' QoL.



## CONCLUSIONS

The six-stage self-management promotion model can enhance the QoL of HF patients, particularly in the socio-economic sector was demonstrated. The structured questionnaire's overall QoL scores and different subscales did not significantly differ from the ctrl grp, although some subscales showed notable improvements inside the int grp. The complexity of HF patients' QoL and the challenges of achieving consistent gains in each domain are emphasized. Addressing the psychological and physical aspects of health is crucial, as demonstrated by the intervention's approach, which includes dietary modifications, medication adherence, physical activity, and psychosocial support and achieved the p value ( $<0,05$ ). However, since there were no appreciable changes in overall QoL, longer follow-up periods and more targeted interventions may be needed to sustain and enhance the effects. Despite these limitations, provides valuable insights into how self-management practices can improve certain aspects of the QoL for HF patients. To enhance the long-term effectiveness of health promotion programs, future research should focus on larger, more diverse populations and explore new approaches. This will ensure comprehensive care that meets the various needs of individuals with HF.

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#### **FINANCING**

None.

#### **CONFLICT OF INTEREST**

None.

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