

Evaluating The Hospital-To-Home Multidisciplinary Intervention Model For Improving Compliance, Functional Ability, And Quality Of Life In Heart Failure Patients

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Abstract

Heart failure (HF) remains a leading cause of morbidity, mortality, and hospital readmissions worldwide, necessitating a comprehensive management approach that extends beyond pharmacotherapy. This study evaluates the effectiveness of an integrated multidisciplinary management model in optimizing treatment outcomes among heart failure patients. The approach involved coordinated care delivered by cardiologists, pharmacists, nurses, dietitians, and physiotherapists, focusing on medication adherence, lifestyle modification, and early detection of decompensation. Patients enrolled in the multidisciplinary program demonstrated significant improvements in functional status, medication compliance, and quality of life compared to those receiving standard care. Furthermore, there was a notable reduction in hospital readmissions and all-cause mortality over a six-month follow-up period. The findings highlight that a structured, team-based management strategy enhances clinical outcomes and patient engagement, underscoring the importance of interprofessional collaboration in the continuum of heart failure care.

Keywords: Heart failure, Multidisciplinary management, Treatment outcomes, Integrated care, Patient adherence

INTRODUCTION

The leading cause of death worldwide, cardiovascular diseases (CVDs) are the hidden disaster of the twenty-first century (Perel P, et al 2015). CVD is currently the world's main killer, with 20.5 million people dying each year from CVDs, close to one third of all deaths worldwide (World Heart Report 2023). The death rate from CVDs has gone down in economically developed countries thanks to new drugs, better medical technology, and changes in government policies and programs. In contrast, about 75% of CVD fatalities among those under 70 years old occur in low- and middle-income countries, which raises serious concerns about their impact (Jeemon P, et al 2021).

"A myocardial infarction, also known as a heart attack, occurs when the coronary blood supply to the heart muscle becomes blocked. Lipid buildup or extreme hypertension may cause a heart conduit to clog or sclerose (Gaziano TA. et al 2007). This leads to sudden cardiac arrest. However, typically, heart failure occurs gradually and becomes worse over time. This complicated disease could be caused by any problem with the ventricle's structure or function that makes it unable to fill with blood (diastolic) or empty of blood (systolic) to meet the metabolic needs of the body. Heart failure may result from valve malfunction, progressive cardiomyopathy, coronary artery disease, or chronic hypertension (Krupp, K et al 2020). If the heart isn't pumping well, it can lead to shortness of breath from swollen lungs and blood vessels, poor exercise tolerance (because tissues aren't getting enough blood), swelling in the feet and legs (called pedal edema), and too much blood and fluid in the body (called volume overload). Numerous factors, such as the patient's age, the severity of the condition, and the involved ventricle, influence the signs and symptoms of heart failure. The most typical signs of left-sided heart failure are shortness of breath, restricted exercise capacity, a chronic, persistent cough, and fluid retention that results in edema in the ankles, legs, or feet. Unusual weight gain, fatigue, and an erratic or rapid pulse are the symptoms of left-sided heart failure (Cavan, David, et al 2016). Typical signs of RSHT. Fluid retention, poor exercise tolerance, and dyspnea are the most prevalent symptoms of heart failure. This negatively impacts an individual's functional abilities and health-related quality of life. The New York Heart Failure Association (NYHA) uses an individual's exercise capacity to categorize the degree of heart failure. It facilitates tracking how well a therapy is working. Over the last 10 years, India's economic expansion and urbanization have caused a greater percentage of its people to adopt unhealthy lifestyles. Human life

expectancy is rising as a result of medical advancements. However, the aging population and early onset of CVDs exacerbate it, and this trend is likely to continue in the coming years. Smoking, being overweight, eating a high-fat diet, and not exercising can cause heart failure, according to the American Heart Association (AHA). Risk factors that can't be changed, like age and genetics, can't be changed, but risk factors that can be changed can easily be changed to lower the chance that the illness will show up. People must, for instance, change their eating habits from harmful to healthy ones. When advanced risk factors like obesity and hypertension are coupled with a decline in physical activity, heart failure results.

India's HF burden is increasing at a startling pace. Heart failure had one of the highest death rates, at 23%, within a year after diagnosis. It has become the leading cause of mortality in all parts of India, including rural and impoverished states. As this pandemic spreads, individuals are embracing bad lifestyle choices, including less exercise, more stress, and consuming too much fat, which results in obesity, diabetes, and hypertension—all of which are co-morbidities that fuel the emergence of cardiac failure. The average life expectancy has grown due to better medical treatment; hence, heart failure is more likely to occur in the years to come among fast-aging populations.

According to Chamberlain (2018), heart failure needs ongoing, long-term care, which may provide significant therapeutic and financial difficulties for patients. Death and illness rates remain high despite significant improvements in treatments and preventative measures, and heart failure lowers a person's level of life satisfaction. A few components with specific objectives, such as symptom alleviation, enhanced living standards, and halting the course of the illness, are often included in complete therapy modalities for patients with heart failure. Treatment includes pharmacological intervention, risk factor reduction, dietary modifications, and instruction in self-care skills. However, the treatment of heart failure patients varies significantly. This has proven to be a major obstacle in the healthcare sector. Together with other medical professionals, patients with heart failure must learn how to cope with the consequences of their condition and therapy, which requires following a prescribed course of treatment. According to research, some of the contributing factors include not taking prescription drugs as directed, not following dietary and fluid guidelines, not taking proper care of oneself, ignoring warning signs, and not recognizing and seeking treatment for exacerbations in a timely manner. (Moye and others, 2018). According to the American Heart Association and the American Society of Cardiology, patient education is a crucial part of managing heart failure. Nurse-Led To get the best outcomes, structured instruction and dyadic counseling are essential. According to Toukhsati et al. (2019), comprehensive patient education includes self-care practices that patients should follow on a daily basis in order to manage this complicated, chronic illness.^{9, 10} Transitional care, also known as specialized post-discharge interventions, consists of one or more activities that help people move from one kind of care setting to another in a safe, efficient, and effective manner.

METHODOLOGY

MATERIALS & METHODS

RESEARCH APPROACH

In view of the nature of the problem and to accomplish the objective of the study, a Quantitative Research Approach was adopted for this study.

RESEARCH DESIGN

The research design outlines the fundamental strategies employed by the researcher to generate precise and interpretable information. It serves as the structural framework for implementing the study.

In this study, a True Experimental pre-test post-test control group design was utilized to validate the outcomes. To demonstrate the effectiveness of the Hospital to Home (H2H) initiative intervention, a comparison was essential. Therefore, the investigator aimed to evaluate the impact of the H2H initiative on therapeutic compliance, functional ability, and health-related quality of life among heart failure patients by comparing the experimental and control groups. To ensure fairness, the investigator used a random allocation method to assign selected heart failure patients equally to either the experimental or control group.

TABLE 1: SCHEMATIC REPRESENTATION OF THE STUDY DESIGN

Random Allocation Design

Groups and Testing Phases

Group	Pre-Test (O ₁)	Intervention	Post-Test 1 (O ₂) (1st Month)	Post-Test 2 (O ₃) (3rd Month)
Experimental Group	O ₁	H ₂ H – Hospital to Home Initiative Intervention Package (X)	O ₂	O ₃
Control Group	O ₁	Conventional Care	O ₂	O ₃

Random Allocation Design

Groups and Testing Phases

Group	Pre-Test (O ₁)	Intervention	Post-Test 1 (O ₂) (1st Month)	Post-Test 2 (O ₃) (3rd Month)
Experimental Group	O ₁	H ₂ H – Hospital to Home Initiative Intervention Package (X)	O ₂	O ₃
Control Group	O ₁	Conventional Care	O ₂	O ₃

O₁ (Pre-Test Data Collection): Includes baseline assessments on the following:

- Demographic and Clinical Variables
- Medication Adherence: Assessed using the Morisky Medication Adherence Scale (MMAS)
- Heart Failure Compliance: Measured using the Heart Failure Compliance Scale (HFCS)
- Self-Care Behavior: Evaluated with the European Heart Failure Self-Care Behavior Scale (EuHFSBs)

- Physical Activity Status: Determined through the DUKE Activity Status Index (DASI) Scale

O₂ : Post-test - 1 {Done at the end of 1st month (30 days) after discharge}

- Morisky Medication Adherence Scale (MMAS): Assesses patients' adherence to prescribed medications.
- Heart Failure Compliance Scale (HFCS): Evaluates patients' compliance with heart failure management guidelines.
- European Heart Failure Self-Care Behavior Scale (EuHFSBs): Measures self-care behaviors in individuals with heart failure.
- DUKE Activity Status Index (DASI) Scale: Determines a patient's physical activity and functional capacity.
- Minnesota Living with Heart Failure (MLHF) Scale: Assesses health-related quality of life in heart failure patients.

O₃ : Post-test - 2 {Done at the end of 3rd month (90 days) after discharge}

- Morisky Medication Adherence Scale (MMAS): Measures adherence to prescribed medications.
- Heart Failure Compliance Scale (HFCS): Assesses compliance with heart failure management.
- European Heart Failure Self-Care Behavior Scale (EuHFSBs): Evaluates self-care practices in heart failure patients.
- DUKE Activity Status Index (DASI) Scale: Gauges physical activity and functional ability.
- Minnesota Living with Heart Failure (MLHF) Scale: Examines health-related quality of life in heart failure patients.

X: Hospital to Home Initiative (H2H)

- Intervention: Cardiovascular care providers committed to improve transitions from hospital settings to home through planned discharge education. Educating patients before discharge promotes compliant to treatment and it helps them to spot their problems early. H2H focused on following domains, Competence in therapeutic compliance in terms of medications adherence salt restriction, life style modifications, early recognition of heart failure signs and symptoms and prompt follow up after discharge.
- Discharge Education: The education session was executed prior to discharge. Three sessions were planned with power point presentation, booklet and reinforcement counselling. On the first day of the intervention, intensive one – on – one teaching was given. This educational session was for about 30 minutes. This education session incorporates,

- Heart failure condition, etiological factors, clinical manifestations, pathophysiology, treatment, and home care management.
 - Medications and its physiological response - Causes of intravascular volume overload and mechanism of actions of diuretics, for relaxing the blood vessels to reduce the strain of heart by administering Angiotensin receptor blockers, other medications and their actions.
 - Role of dietary limitations of sodium to less than 2 gms of patient with NYHA class II,III. Instructed family care giver about preparing and seasoning the food with herbs like coriander and methi leaves, spices and garlic instead of adding the salt. The saltiness of food is enhanced by lemon juice. Keep record of salt intake. Eat heart healthy; consume less processed, foods that are low- fat and high - fiber. Meals must be rich with vegetables, whole grains or starch. Prefer fruits and vegetable salads in the place of salty, excessive fat snacks. Avoid fast food restaurants. Focus on farm fresh foods.
 - Additionally, the patient education session contained rationale for self-care behaviours' (smoking cessation and avoid alcohol) and distinguish signs of heart failure exacerbation according to the change in body weight, and the skills for action in case of sudden weight gain (eg. reduce fluid intake / salt intake and contact the nurse / physician if necessary).
 - At the end of the education session, the patients were asked to express their views and doubts about transitional considerations. Investigator checked whether education was effective by their response towards the education.
 - Counselling session: On the Second day, the session began with a review of the disease condition by family care givers. Counselling was provided at many stages including rapport and relationship building, assessment, goal setting; initiating intervention about medication adherence, dietary restriction, life style modifications and with counselling session lasted for 30 – 40 minutes.
 - Reassurance and follow up: In further weekly telephone counselling for 4 weeks, the investigator asked questions such as “How do you perform daily activities?” or “was there seemed to be any swelling?” Are you adhering medications and eating a low-salt diet?, Are you going for walking regularly? and How were leisure activities in this week?
 - At the end of education and counselling session the study group has given Patient training booklet “Follow your heart - Embrace the New You” presented in simple to pursue format along with discharge summary. The booklet was provided for the conventional group after the post - test - II.
- The data was represented using simple bar diagrams, multiple bar diagrams, and basic bar diagrams with two standard error diagrams. Two-tailed tests were employed to examine for significance, and a p-value of ≤ 0.05 was deemed statistically significant

RESULTS

TABLE 5.40 CORRELATION BETWEEN FUNCTIONAL ABILITY, HEALTH RELATED QUALITY OF LIFE AND THERAPEUTIC COMPLIANCE AMONG HEART FAILURE PATIENTS (EXPERIMENTAL GROUP)

Correlation between	Post-test Mean Score	Correlation Coefficient	Interpretation of Correlation Coefficient
Adherence score Vs Compliance score	6.91±0.90 Vs 105.22±8.43	$r=0.37$ $p=0.001^{***}$	There is a positive fair correlation between Adherence gain score and Compliance gain score
Adherence score Vs Behaviour score	6.91±0.90 Vs 13.80±4.24	$r=-0.42$ $p=0.001^{***}$	There is a negative moderate correlation between Adherence gain score and Compliance gain score
Adherence score Vs Functional Ability score	6.91±0.90 Vs 7.93±1.94	$r=0.32$ $p=0.001^{***}$	There is a positive Fair correlation between Adherence gain score and Functional ability gain score

Adherence score Vs Impairment QOL score	6.91±0.90 Vs 27.76±6.17	r=-0.43 p=0.001***	There is a negative Moderate correlation between Adherence gain score and impairment reduction score
Compliance score Vs Behaviour score	105.22±8.43 Vs 13.80±4.24	r=-0.34 p=0.01**	There is a negative fair correlation between Compliance score gain score and Behaviour reduction score
Compliance score Vs Functional Ability	105.22±8.43 Vs 7.93±1.94	r=0.25 p=0.05*	There is a positive fair correlation between Compliance gain score and functional ability gain score
Compliance score Vs Impairment QOL score	105.22±8.43 Vs 27.76±6.17	r=-0.27 p=0.01**	There is a negative fair correlation between Compliance gain score and impairment reduction score
Behaviour score Vs Functional Ability	13.80±4.24 Vs 7.93±1.94	r=-0.39 p=0.001***	There is a negative fair correlation between Compliance gain score and Behaviour reduction score
Behaviour score Vs Impairment QOL score	13.80±4.24 Vs 27.76±6.17	r=0.43 p=-0.001***	There is a positive moderate correlation between Behaviour reduction score and impairment reduction score
Functional ability score Vs Impairment QOL score	7.93±1.94 Vs 27.76±6.17	r=-0.37 p=-0.001***	There is a negative fair correlation between functional ability gain score and impairment reduction score

Table 5.40 shows the correlation between Functional ability, Health related Quality of life and therapeutic compliance among Heart failure patients among experimental group.

TABLE 5.41 CORRELATION BETWEEN FUNCTIONAL ABILITY, HEALTH RELATED QUALITY OF LIFE AND THERAPEUTIC COMPLIANCE AMONG HEART FAILURE PATIENTS (CONTROL GROUP)

Correlation between	Post-test Mean Score	Correlation Coefficient	Interpretation of Correlation Coefficient
Adherence score Vs Compliance score	3.54±0.92 Vs 71.54±6.72	r=0.11 p=0.26	There is a positive Poor correlation between Adherence gain score and Compliance gain score
Adherence score Vs Behaviour score	3.54±0.92 Vs 24.93±2.80	r=-0.09 p=0.43	There is a negative Poor correlation between Adherence gain score and Compliance gain score
Adherence score Vs Functional Ability score	3.54±0.92 Vs 4.68±1.48	r=0.18 p=0.09	There is a positive Poor correlation between Adherence gain score and Functional ability gain score
Adherence score Vs Impairment QOL score	3.54±0.92 Vs 63.66±6.64	r=-0.14 p=0.38	There is a negative Poor correlation between Adherence gain score and impairment reduction score

Compliance score Vs Behaviour score	71.54±6.72Vs 24.93±2.80	r=-0.16 p=0.18	There is a negative Poor correlation between Compliance score gain score and Behaviour reduction score
Compliance score Vs Functional Ability	71.54±6.72Vs 4.68±1.48	r=0.17 p=0.26	There is a positive Poor correlation between Compliance gain score and functional ability gain score
Compliance score Vs Impairment QOL score	71.54±6.72Vs 63.66±6.64	r=-0.18 p=0.22	There is a negative Poor correlation between Compliance gain score and impairment reduction score
Behaviour score Vs Functional Ability	24.93±2.80Vs 4.68±1.48	r=-0.16 p=0.34	There is a negative Poor correlation between Compliance gain score and Behaviour reduction score
Behaviour score Vs Impairment QOL score	24.93±2.80Vs 63.66±6.64	r =-0.17 p=-0.32	There is a positive Poor correlation between Behaviour reduction score and impairment reduction score
Functional ability score Vs Impairment QOL score	4.68±1.48Vs 63.66±6.64	r=- 0.16 p=-0.31	There is a negative Poor correlation between functional ability gain score and impairment reduction score

Table 5.41 shows the correlation between Functional ability, Health related Quality of life and therapeutic compliance among Heart failure patients among control group.

TABLE 5.42 ASSOCIATION BETWEEN POST-TEST LEVEL OF MEDICATION ADHERENCE SCORE AND DEMOGRAPHIC & CLINICAL VARIABLES (EXPERIMENTAL GROUP)

Demographic & Clinical Variables		Post-test Level of Medication Adherence						n	Chi square Test / Yates Corrected
		Low Adherence		Medium Adherence		High Adherence			
		n	%	n	%	n	%		
Age	31 - 50 years	1	2.00	12	24.00	37	74.00	50	χ ² =6.52 P=0.04** DF=2 (S)
	51 - 70 years	9	16.07	9	16.07	38	67.86	56	
Sex	Male	9	9.18	18	18.37	71	72.45	98	χ ² =1.98 P=0.37 DF=2 (NS)
	Female	1	12.50	3	37.50	4	50.00	8	
Married	Married	5	5.68	19	21.59	64	72.73	88	χ ² =8.84 P=0.01 DF=2 (NS)
	Others	5	27.78	2	11.11	11	61.11	18	
Education	Upto HSC	5	10.00	16	32.00	29	58.00	50	χ ² =9.31 P=0.01** DF=2 (S)
	Above HSC	5	8.93	5	8.93	46	82.14	56	

Occupation	Employed	5	7.69	15	23.08	45	69.23	65	$\chi^2=1.50$ P=0.47 DF=2 (NS)
	Unemployed	5	12.20	6	14.63	30	73.17	41	
Alcohol intake	Non drinker	5	10.42	12	25.00	31	64.58	48	$\chi^2=1.75$ P=0.41 DF=2 (NS)
	Drinkers	5	8.62	9	15.52	44	75.86	58	
Smoking	Yes	4	10.26	4	10.26	31	79.48	39	$\chi^2=3.55$ P=0.17 DF=2 (NS)
	No	6	8.96	17	25.37	44	65.67	67	
Etiology of illness	CAD	0	0.00	8	19.51	33	80.49	41	$\chi^2=7.20$ P=0.03 DF=2(NS)
	Others	10	15.38	13	20.00	42	64.62	65	
LVEF	35 - 40%	3	5.36	11	19.64	42	75.00	56	$\chi^2=2.39$ P=0.30 DF=2 (NS)
	25 - 35%	7	14.00	10	20.00	33	66.00	50	
Co morbidities	Hypertension	4	10.53	10	26.32	24	63.16	38	$\chi^2=1.82$ P=0.40 DF=2 (NS)
	HT+DM+OTHERS	6	8.82	11	16.18	51	75.00	68	
Medications	ACE+Bet+spir+Dig	6	12.00	8	16.00	36	72.00	50	$\chi^2=1.38$ P=0.50 DF=2 (NS)
	Other Combination	4	7.14	13	23.21	39	69.64	56	
Previous hospitalization	Yes	10	10.31	20	20.62	67	69.07	97	$\chi^2=1.76$ P=0.42 DF=2 (NS)
	No	0	0.00	1	11.11	8	88.89	9	

DF Degrees of freedom NS =not significant, S= significant $p>0.05$ not significant $p\leq 0.05$ significant, $p\leq 0.01$ highly significant,

Table 5.42 shows the association between post-test levels of Medication adherence score. 31-50 years patients, more educated (above HSC) were having more medium adherence score than others. Statistical significance was calculated using chi square test and Yates corrected chi square test.

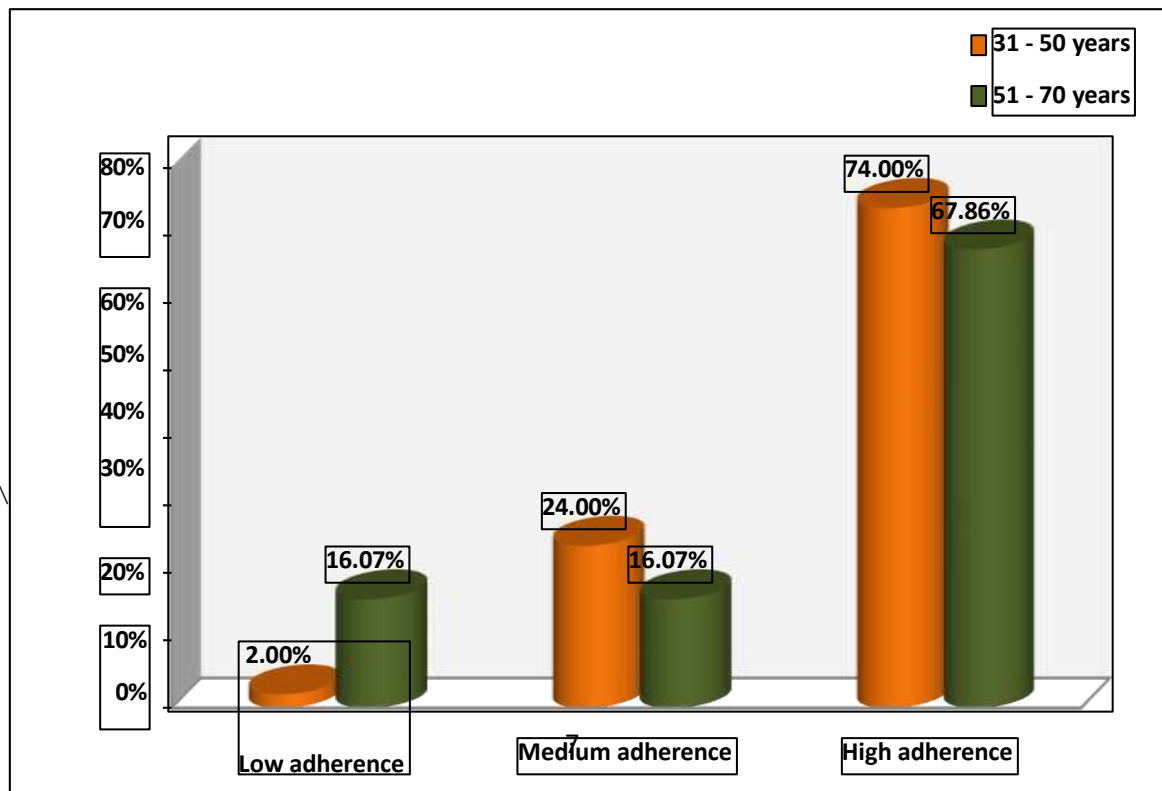


FIG. 5.33 ASSOCIATION BETWEEN POST-TEST LEVEL OF MEDICATION ADHERENCE SCORE AND PATIENTS AGE

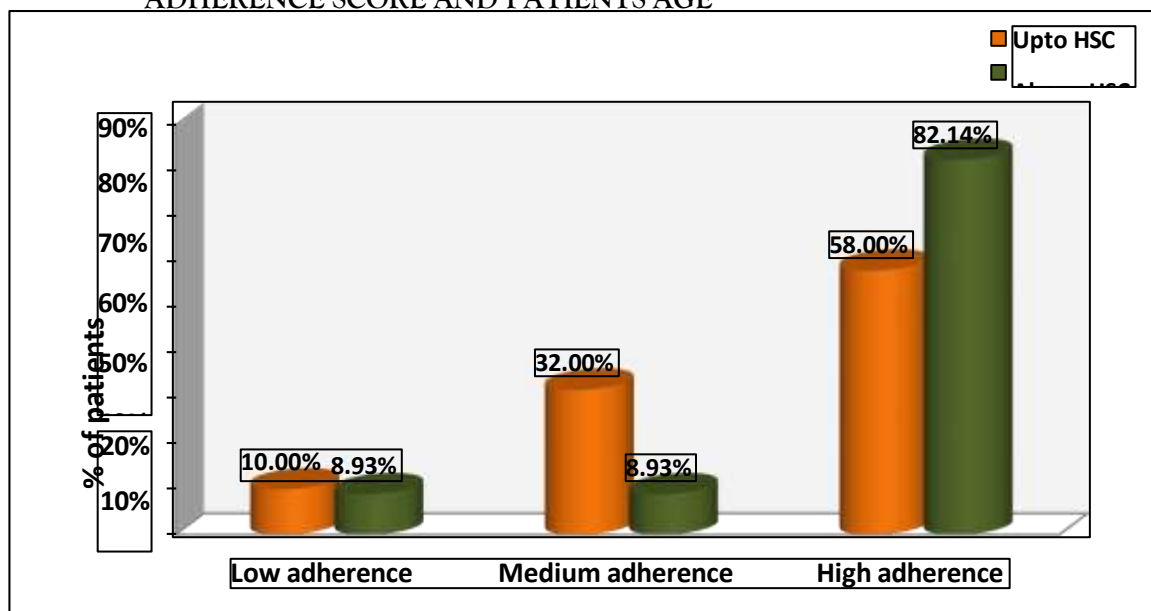


FIG. 5.34 ASSOCIATION BETWEEN POST-TEST LEVEL OF MEDICATION ADHERENCE SCORE AND PATIENTS EDUCATION

TABLE 5.43 ASSOCIATION BETWEEN POST-TEST LEVEL OF MEDICATION ADHERENCE SCORE AND DEMOGRAPHIC & CLINICAL VARIABLES (CONTROL GROUP)

Demographic & Clinical Variables		Post-test Level of Medication Adherence						n	Chi square Test / Yates Corrected Chi square Test
		Low Adherence		Medium Adherence		High Adherence			
		n	%	n	%	n	%		
Age	31 - 50 years	31	86.11	5	13.89	0	0.00	36	$\chi^2=1.40$ P=0.24 DF=1 (NS)
	51 - 70 years	55	76.39	17	23.61	0	0.00	72	
Sex	Male	75	77.32	22	22.68	0	0.00	97	$\chi^2=3.13$ P=0.08D F=1 (NS)
	Female	11	100.00	0	0.00	0	0.00	11	
Married	Married	69	82.14	15	17.86	0	0.00	84	$\chi^2=1.47$ P=0.22 DF=1 (NS)
	Others	17	70.83	7	29.17	0	0.00	24	
Education	Upto HSC	46	79.31	12	20.69	0	0.00	58	$\chi^2=0.01$ P=0.93 DF=1 (NS)
	Above HSC	40	80.00	10	20.00	0	0.00	50	
Occupation	Employed	53	81.54	12	18.46	0	0.00	65	$\chi^2=0.37$ P=0.55

	Unemployed	33	76.74	10	23.26	0	0.00	43	DF=1 (NS)
Alcohol intake	Non drinker	40	83.33	8	16.67	0	0.00	48	$\chi^2=0.73$ P=0.40 DF=1 (NS)
	Drinkers	46	76.67	14	23.33	0	0.00	60	
Smoking	Yes	20	68.97	9	31.03	0	0.00	29	$\chi^2=2.78$ P=0.10 DF=1 (NS)
	No	66	83.54	13	16.46	0	0.00	79	
Etiology of illness	CAD	47	85.45	8	14.55	0	0.00	55	$\chi^2=2.34$ P=0.13 DF=1 (NS)
	Others	39	73.58	14	26.42	0	0.00	53	
LVEF	35 - 40%	53	86.89	8	13.11	0	0.00	61	$\chi^2=3.57$ P=0.06 DF=1 (NS)
	25 - 35%	33	70.21	14	29.79	0	0.00	47	
Co morbidities	Hypertension	28	87.50	4	12.50	0	0.00	32	$\chi^2=1.73$ P=0.19 DF=1(NS)
	HT+DM+OTHE	58	76.32	18	23.68	0	0.00	76	
Medications	ACE+Beta+spir+Dig	31	91.18	3	8.82	0	0.00	34	$\chi^2=3.11$ P=0.08 DF=1 (NS)
	Other combined	55	74.32	19	25.68	0	0.00	74	

Table 5.43 shows the association between post-test levels of Medication adherence score. None of the variable was significantly associated. Statistical significance was calculated using chi square test and yates corrected chi square test

TABLE 5.44 ASSOCIATION BETWEEN POST-TEST LEVEL OF HEART FAILURE COMPLIANCE SCALE SCORE AND DEMOGRAPHIC & CLINICAL VARIABLES (EXPERIMENTAL GROUP)

Demographic & Clinical Variables		Post-test Level of Compliance						n	Chi square Test/Yates Corrected Chi square Test
		Low Compliance		Medium Compliance		High Compliance			
		n	%	n	%	n	%		
Age	31 - 50 years	2	4.00	9	18.00	39	78.00	50	$\chi^2=2.22$ P=0.32 DF=2 (NS)
	51 - 70 years	4	7.14	5	8.93	47	83.93	56	
Sex	Male	5	5.10	11	11.22	82	83.67	98	$\chi^2=5.61$ P=0.06 DF=2(NS)
	Female	1	12.50	3	37.50	4	50.00	8	
Married	Married	3	3.41	11	12.50	74	84.09	88	$\chi^2=5.39$ =0.07DF=2 (NS)
	Others	3	16.67	3	16.67	12	66.66	18	
Education	Upto HSC	4	8.00	11	22.00	35	70.00	50	$\chi^2=7.90$ P=0.05* DF=2 (S)
	Above HSC	2	3.57	3	5.36	51	91.07	56	
Occupation	Employed	2	3.08	8	12.31	55	84.62	65	$\chi^2=2.33$ P=0.31 DF=2 (NS)
	Unemployed	4	9.76	6	14.63	31	75.61	41	

Alcohol intake	Non drinker	3	6.25	10	20.83	35	72.92	48	$\chi^2=5.47$ P=0.06 DF=2 (NS)
	Drinkers	3	5.17	4	6.90	51	89.66	58	
Smoking	Yes	3	7.69	4	10.26	32	82.05	39	$\chi^2=0.86$ P=0.65 DF=2 (NS)
	No	3	4.47	10	14.92	54	80.61	67	
Etiology of illness	CAD	1	2.43	9	21.95	31	75.61	41	$\chi^2=5.34$ P=0.06 DF=2 (NS)
	Others	5	7.69	5	7.69	55	84.61	65	
LVEF	35 - 40%	0	0.00	7	12.50	49	87.50	56	$\chi^2=7.32$ P=0.02* DF=2 (S)
	25 - 35%	6	12.00	7	14.00	37	74.00	50	
Co morbidities	Hypertension	1	2.63	2	5.26	35	92.11	38	$\chi^2=4.67$ P=0.08 DF=2 (NS)
	HT+DM+OTHERS	5	7.35	12	17.65	51	75.00	68	
Medications	ACE+Beta+spir+Dig	4	8.00	4	8.00	42	84.00	50	$\chi^2=2.95$ P=0.22 DF=2 (NS)
	Other Combination	2	3.57	10	17.86	44	78.57	56	

Table 5.44 shows the association between post-test levels of compliance score. More educated (above HSC) and 35-40% LVEF were having more high compliance score than others. Statistical significance was calculated using chi square test and Yates corrected chi square test.

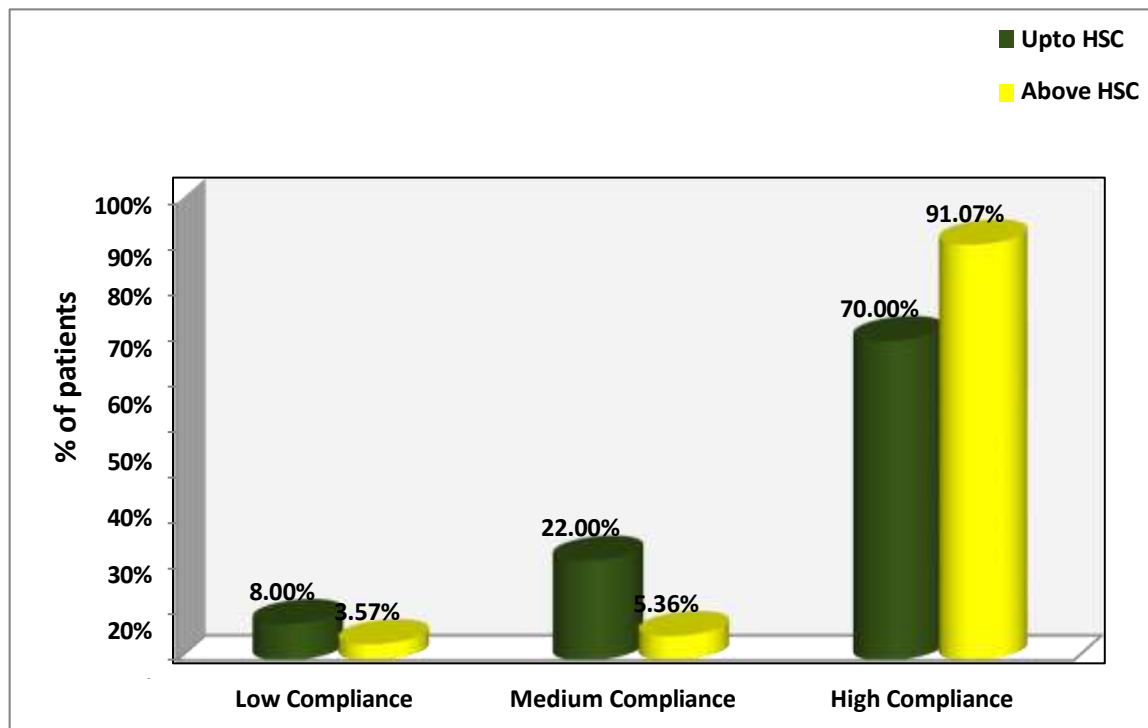


FIG. 5.35 ASSOCIATION BETWEEN POST-TEST LEVEL OF COMPLIANCE SCORE AND PATIENTS EDUCATION STATUS

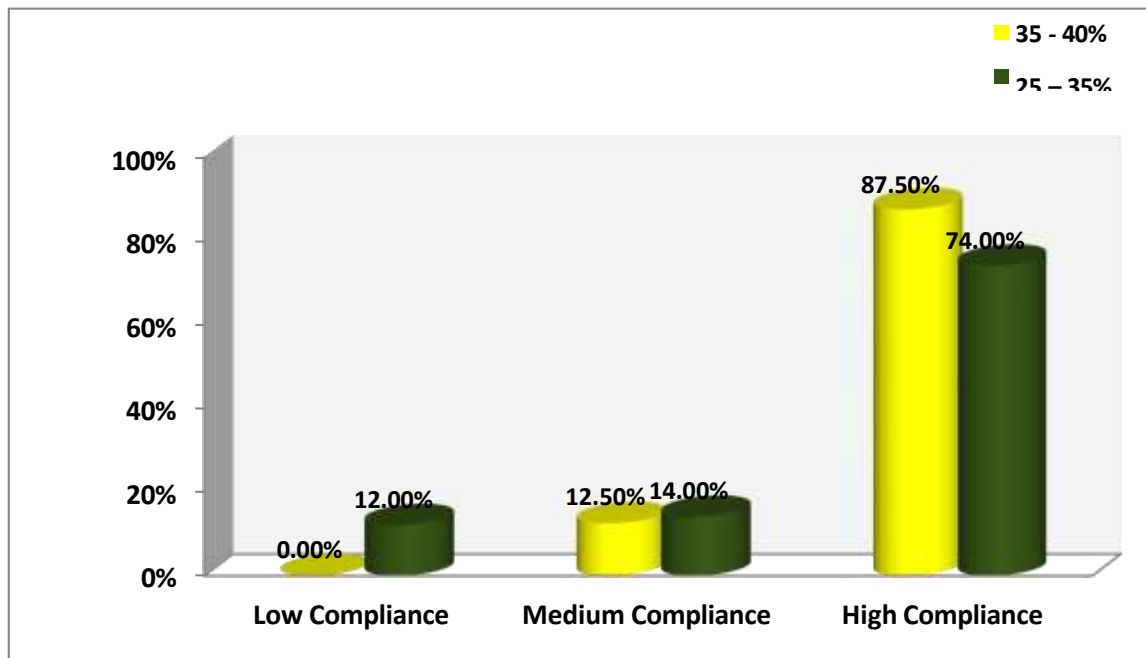


FIG. 5.36 ASSOCIATION BETWEEN POST-TEST LEVEL OF COMPLIANCE SCORE AND PATIENTS LVEF STATUS

TABLE 5.45 ASSOCIATION BETWEEN POST-TEST LEVEL OF HEART FAILURE COMPLIANCE SCALE SCORE AND DEMOGRAPHIC & CLINICAL VARIABLES (CONTROL GROUP)

Demographic & Clinical Variables		Post-test Level of Compliance						n	Chi square Test/yates Corrected Chi square Test
		Low Compliance		Medium Compliance		High Compliance			
		n	%	n	%	n	%		
Age	31 - 50 years	8	22.22	28	77.78	0	0.00	36	12=0.27
	51 - 70 years	13	18.06	59	81.94	0	0.00	72	P=0.61DF=1 (NS)
Sex	Male	19	19.59	78	80.41	0	0.00	97	12=0.01
	Female	2	18.18	9	81.82	0	0.00	11	P=0.91DF=1 (NS)
Married	Married	14	16.67	70	83.33	0	0.00	84	12=1.86
	Others	7	29.17	17	70.83	0	0.00	24	P=0.17 DF=1 (NS)
Education	Upto HSC	12	20.69	46	79.31	0	0.00	58	12=0.12
									P=0.72 DF=1

	Above HSC	9	18.00	41	82.00	0	0.00	50	(NS)
Occupation	Employed	16	24.62	49	75.38	0	0.00	65	$\chi^2=2.79$
	Unemployed	5	11.63	38	88.37	0	0.00	43	P=0.10 DF=1 (NS)
Alcohol intake	Non drinker	7	14.58	41	85.42	0	0.00	48	$\chi^2=1.30$
	Drinkers	14	23.33	46	76.67	0	0.00	60	P=0.25 DF=1 (NS)
Smoking	Yes	10	34.48	19	65.52	0	0.00	29	$\chi^2=1.86$
	No	11	13.92	68	86.08	0	0.00	79	P=0.17 DF=1 (NS)
Etiology of illness	CAD	11	20.00	44	80.00	0	0.00	55	$\chi^2=0.02$
	Others	10	18.87	43	81.13	0	0.00	53	P=0.82 DF=1 (NS)
LVEF	35 - 40%	12	19.67	49	80.33	0	0.00	61	$\chi^2=0.01$
	25 - 35%	9	19.15	38	80.85	0	0.00	47	P=0.95 DF=1 (NS)
Co morbidities	Hypertension	4	12.50	28	87.50	0	0.00	32	$\chi^2=1.33$
	HT+DM+OTHERS	17	22.37	60	77.63	0	0.00	76	P=0.25 DF=1 (NS)
Medications	ACE+Beta+spir+Dig	6	17.65	28	82.35	0	0.00	34	$\chi^2=0.17$
	Other Combination	15	20.27	59	79.73	0	0.00	74	P=0.67 DF=1 (NS)

Table 5.45 shows the association between post-test levels of compliance score. None of the variable was significantly associated. Statistical significance was calculated using chi square test and Yates corrected chi square test.

TABLE 5.46 ASSOCIATION BETWEEN POST-TEST LEVEL OF EUROPEAN HEART FAILURE SELF CARE BEHAVIOUR SCALE SCORE AND DEMOGRAPHIC & CLINICAL VARIABLES (EXPERIMENTAL GROUP)

Demographic & Clinical Variables		Post-test Level of Behaviour Score						n	Chi square Test/yates Corrected Chi square Test
		Good		Moderate		Poor			
		n	%	n	%	n	%		
Age	31 - 50 years	4	8.00	46	92.00	0	0.00	50	⌒2=3.71 P=0.05DF=1 (NS)
	51 - 70 years	12	21.43	44	78.57	0	0.00	56	
Sex	Male	14	14.29	84	85.71	0	0.00	98	⌒2=0.86 P=0.42DF=1 (NS)
	Female	2	25.00	6	75.00	0	0.00	8	
Married	Married	11	12.50	77	87.50	0	0.00	88	⌒2=2.72P=0.10 DF=1 2(NS)
	Others	5	27.78	13	72.22	0	0.00	18	
Education	Upto HSC	3	6.00	47	94.00	0	0.00	50	⌒2=6.11 P=0.01** DF=1 (S)
	Above HSC	13	23.21	43	76.79	0	0.00	56	
Occupation	Employed	2	3.08	63	96.92	0	0.00	65	⌒2=5.44 P=0.02* DF=1 (S)
	Unemployed	14	34.15	27	65.85	0	0.00	41	
Alcohol intake	Non drinker	11	22.92	37	77.08	0	0.00	48	⌒2=2.25 P=0.13 DF=1 (NS)
	Drinkers	5	8.62	53	91.08	0	0.00	58	
Smoking	Yes	5	12.82	34	87.18	0	0.00	39	⌒2=0.24 P=0.62 DF=1 (NS)
	No	11	16.42	56	83.58	0	0.00	67	
Etiology of illness	CAD	8	19.51	33	80.49	0	0.00	41	⌒2=1.01 P=0.31 DF=1 (NS)
	Others	8	12.31	57	87.69	0	0.00	65	
LVEF	35 - 40%	9	16.07	47	83.93	0	0.00	56	⌒2=0.09 P=0.77 DF=1 (NS)
	25 – 35%	7	14.00	43	86.00	0	0.00	50	
Co morbidities	Hypertension	4	10.53	34	89.47	0	0.00	38	⌒2=0.96 P=0.33 DF=1 (NS)
	HT+DM+OTHERS	12	17.65	56	82.35	0	0.00	68	
Medications	ACE+Beta+spir	6	12.00	44	88.00	0	0.00	50	⌒2=0.71P=0.40 DF=1 (NS)
	Other	10	17.86	46	82.14	0	0.00	56	

Table 5.46 shows the association between post-test levels of behaviour score. Unemployed patients, more educated (above HSC) were having more good behaviour score than others. Statistical significance was calculated using chi square test and Yates corrected chi square test.

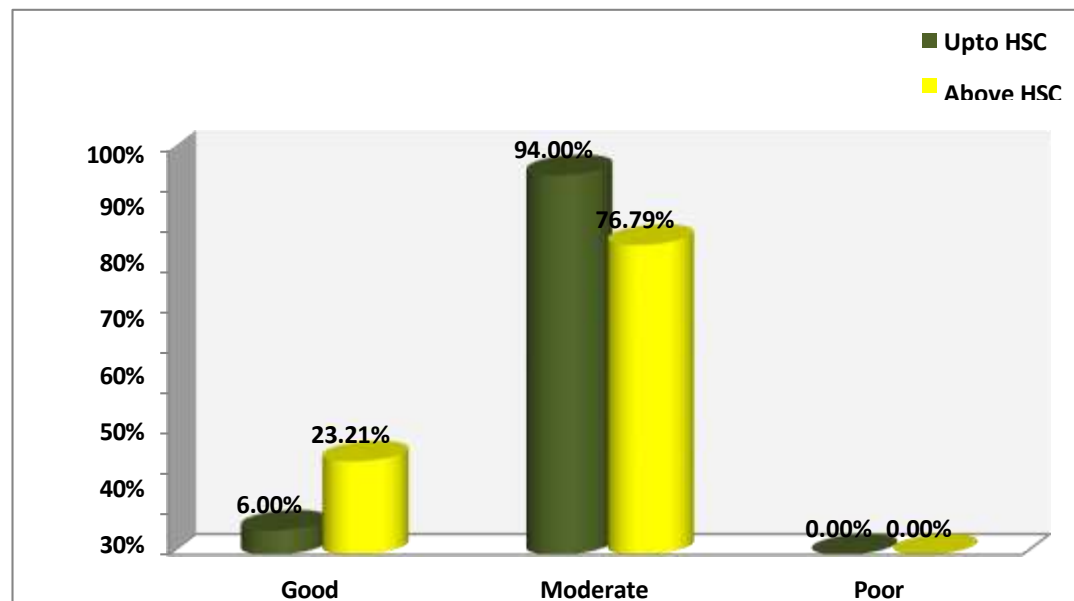


FIG. 5.37 ASSOCIATION BETWEEN POST-TEST LEVEL OF BEHAVIOUR SCALE SCORE AND PATIENTS EDUCATION

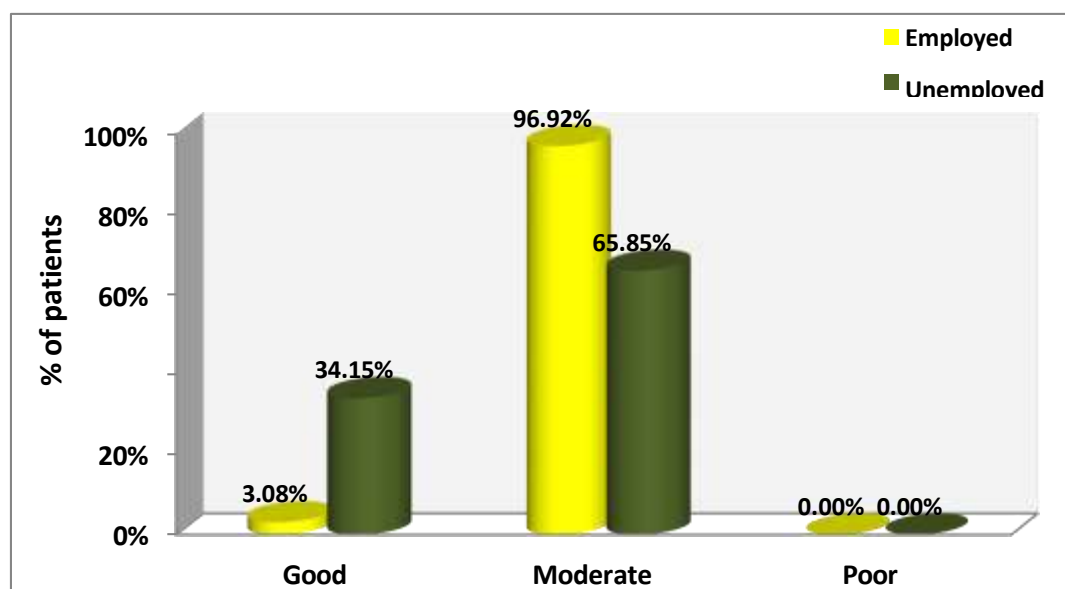


FIG. 5.38 ASSOCIATION BETWEEN POST-TEST LEVEL OF BEHAVIOUR SCALE SCORE AND PATIENTS OCCUPATION

The results indicated the significance of creating a patient education program aimed at enhancing functional capacity, treatment compliance, and health-related quality of life. Nurses must adapt evidence-based recommendations to global practice environments and are especially prepared to carry out such programs that may enhance health outcomes.

CONCLUSION

The implementation of an integrated multidisciplinary management model significantly enhances treatment outcomes and quality of life among patients with heart failure. By fostering collaboration between cardiologists, pharmacists, nurses, dietitians, and physiotherapists, this approach ensures comprehensive and patient-centered care. The study demonstrates that coordinated interventions improve medication adherence, functional capacity, and disease awareness while reducing hospital

readmissions and mortality rates. Therefore, multidisciplinary care should be considered an essential component of standard heart failure management to achieve sustainable and optimal clinical outcomes.

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