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To Determine the Impact of Self-Efficacy-Based Training on the Adherence to Treatment among Patients Diagnosed with Heart Failure

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doi: [10.33472/AFJBS.6.6.2024.6590-6598](https://doi.org/10.33472/AFJBS.6.6.2024.6590-6598)**ABSTRACT:**

Aim: To determine the impact of self-efficacy-based training on the adherence to treatment among patients diagnosed with heart failure. **Material and methods:** After obtaining ethical permission from the Ethics Committee, we conducted quasi-experimental research including 100 heart failure patients who were hospitalized to the coronary care and cardiac critical care units. The sample size was determined to be 50 persons each group, resulting in a total of 100 participants. The study included individuals who met the following criteria: a confirmed diagnosis of heart failure by a physician, at least 24 hours after admission, aged between 30 and 62 years, without any speech, hearing, or visual impairments, possessing basic literacy skills, having an ejection fraction (EF) of 15 to 40% as determined by ECG results, no previous history of mental disorders, and neither the patient nor any family members being employed in the medical profession. **Results:** Prior to the intervention, the average treatment adherence scores in the intervention and control groups were 50.95 ± 10.33 and 48.76 ± 8.64 , respectively. Following the intervention, these scores increased to 71.58 ± 9.95 and 50.06 ± 9.42 . The paired samples t-test revealed a statistically significant rise in treatment adherence scores among patients in the intervention group after the intervention, as compared to before the intervention ($P = 0.001$). Conversely, the control group did not experience a significant change in treatment adherence scores before and after the intervention ($P = 0.43$). Furthermore, the independent samples t-test revealed substantial disparities in the average treatment adherence ratings between the two groups after the intervention ($P = 0.001$). **Conclusions:** The findings of this research suggest that a training program focused on self-efficacy may greatly improve medication adherence in individuals with heart failure. Hence, the creation and execution of self-efficacy-focused training programs, which are economical and promote involvement from individuals with heart failure, may result in enhancements in patient outcomes.

Keywords: Training, Adherence, Heart failure, Ejection fraction. SBP.

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1. INTRODUCTION

The rise in the occurrence of cardiovascular disorders may be attributed to advancements in healthcare, better management of communicable diseases, urbanization, industrialization, population aging, and population growth [1]. The impact of self-efficacy-based training on adherence to treatment among patient diagnosed with heart failure is critical study. The American Heart Association reports that heart failure accounts for around 7.3% of all fatalities caused by cardiovascular illnesses. The worldwide prevalence of this illness is expected to increase by 25% by 2030[2]. Heart failure affects roughly 6.5 million individuals in Europe, with over one million people in Iran being impacted by this condition [3,4].

Cardiovascular illnesses are the primary cause of mortality and the sixth major cause of disability globally, comprising 25 - 45% of all fatalities. In 2020, heart failure, which is a kind of cardiovascular illness, accounted for 75% of the main causes of mortality worldwide [5]. This illness affects about 5.1 million Americans, with 825,000 new cases recorded each year [6]. The estimated prevalence of heart failure in Iran is 3,500 instances per 100,000 persons, which is three times greater than in the United States. However, it is anticipated that the prevalence of heart failure would increase because of the aging population and advancements in therapy that lower death rates [7].

Research suggests that individuals suffering from heart failure face a multitude of physical, psychological, emotional, and spiritual difficulties. In addition, family members who provide care for these persons face a multitude of challenges [8]. These issues have a substantial influence on patients' everyday activities and their personal and social life [9]. Furthermore, the multitude of challenges faced by these individuals leads to frequent hospitalizations and higher death rates [10]. Given the elevated frequency of hospitalizations and subsequent readmissions for heart failure [11], this medical condition imposes a significant economic burden on both individuals and healthcare systems [12].

NEED OF THE STUDY

Complying with treatment suggestions may greatly decrease the immediate and long-term effects of the condition, therefore averting these difficulties. Nevertheless, most patients, exceeding 50%, exhibit insufficient adherence to therapy [13]. Heart failure patients face several obstacles when it comes to adhering to therapy and self-care recommendations. Studying heart failure is crucial due to its significant impact on public health. During hospitalization, physicians and nurses closely monitor and supervise the implementation of treatment and care instructions, ensuring strict adherence to medical protocols under the supervision of nurses. Noncompliance with therapy shows a behavior that might possibly be changed. A study conducted in the United States has shown that between 20% and 64% of readmissions among patients with heart failure are caused by non-adherence or inadequate adherence to medication [14].

Bandura asserts that self-efficacy is a crucial antecedent to modifying one's conduct. Self-efficacy is considered a crucial factor in determining behavior since it functions as a separate element of an individual's fundamental skills. Hence, those who possess a strong belief in their capacity to carry out self-care are more inclined to actively participate in self-care activities [15]. In order to optimize adherence, it is crucial to use efficient training approaches for heart failure patients, which will boost their awareness and comprehension of their drug schedule. Training programs for cardiovascular patients frequently prioritize behavioral change and promoting adherence to medicine and medical directions. However, they may neglect the crucial aspect of instilling in patients a sense of confidence in their ability to sustain lifestyle changes and consistently adhere to medication for the long term [16]. Within this particular environment, nurses assume a crucial and central role in the teaching of patients. Training programs based on self-efficacy typically target drug adherence.

Nevertheless, the effectiveness of such therapies has not been extensively investigated in individuals with cardiac conditions.

AIM OF THE STUDY

To determine the impact of self-efficacy-based training on the adherence to treatment among patients diagnosed with heart failure.

2. MATERIAL AND METHODS

This quasi-experimental study aimed to determine the impact of self-efficacy-based training on the adherence to heart failure treatment among patients diagnosed with heart failure. Following the acquisition of ethical approval from the Ethics Committee, we included 100 heart failure patients hospitalized in the coronary care and cardiac critical care units. These patients were assigned to either the control or intervention groups through a random process involving blue and red cards to designate group membership. The sample comprised 50 participants in each group, making a total of 100 participants. Convenience sampling was employed to recruit participants, based on their willingness to participate and completion of an informed consent form. Reliability of the study was ensured through the use of reliability tools. Additionally, a pilot study was conducted on 10% of the population to test the study's procedures and instruments.

The study involved individuals aged 30-62 years with a confirmed diagnosis of heart failure, an ejection fraction of 15-40%, and no speech, hearing, or visual impairments. Exclusion criteria included non-participation in training sessions and failure to acquire the training material. Data collection utilized a demographic questionnaire and the Treatment Adherence Scale, covering nutrition, exercise, and pharmaceutical regimens, with strong reliability values (0.86-0.95). After dividing participants into intervention and control groups, both groups completed the demographic questionnaire and Treatment Adherence Scale.

The intervention group received a tailored training program focusing on self-efficacy, including education on vascular risk factors, lifestyle changes, medication adherence, and stress management over four days in the coronary care unit. Sessions included personalized counseling, Q&A portions, and vocal motivation, with a comprehensive needs assessment conducted beforehand. Family members were encouraged to participate in goal setting and problem-solving to support treatment adherence.

The training curriculum emphasized skills for behavior change and cardiovascular risk factor adjustment. Patients kept diaries to track medication use, diet, and physical activity, and engaged in weekly phone follow-ups for three months' post-intervention to reinforce training and assess adherence. Both groups completed the Treatment Adherence Scale three months later, with the control group receiving training materials post-trial.

Data analysis via SPSS 25.0 included descriptive statistics, chi-square tests for qualitative factors, independent samples t-tests for contextual variables, and the Shapiro-Wilk test for normality. Significance was set at $P < 0.05$. The intervention aimed to enhance treatment adherence through education, skill-building, and continuous support.

3. RESULTS

The research included a cohort of 100 individuals diagnosed with heart failure. The participants were categorized into control ($n = 50$) and intervention ($n = 50$) groups. Parametric tests were used for data analysis. In the intervention group, the patients had an average age of 62.18 ± 4.38 years, whereas in the control group, the average age was 61.64 ± 6.22 years. The independent samples t-test found no statistically significant disparity in the mean age between the two groups ($P = 0.08$). In addition, there were no statistically

significant differences observed between the groups in terms of hospitalization history ($P=0.17$), smoking behaviors ($P=0.35$), and underlying disorders ($P=0.14$) (Tables -1). There was no substantial disparity in the average length of hospital stay between the two groups. The average systolic and diastolic blood pressures in both the intervention and control groups were similar. The demographic and clinical features of the patients in the intervention and control groups were similar, as shown in Tables 1 and 2.

Table -1. Demographic parameter of the Patients in the Two Groups
N=100

Variables	Intervention group N = 50		Control group N = 50		p value
	Number	Percentage	Number	Percentage	
Gender					
Male	37	74	17	34	0.22
Female	13	26	33	66	
Smoking					
Yes	5	10	4	8	0.35
No	45	90	46	92	
Underlying diseases					
Yes	38	76	37	74	0.34
No	12	24	13	26	
Education					
Illiterate	22	44	32	64	0.15
up to 10 th	20	40	14	28	
Up to graduate	8	16	4	8	
Mean Age	62.18	9.31	61.64	13.56	0.08
Number of admissions	5.88	6.32	5.93	5.87	0.17

Table -2: Clinical features of patients with heart failure

Parameter	Intervention group		Control group		p value
	Mean	SD	Mean	SD	
Ejection fraction	47.24	11.23	52.23	10.12	0.11
Duration of admission	5.57	2.95	5.87	2.67	0.76
Systolic blood pressure	135.22	17.76	135.73	9.53	0.99
Diastolic blood pressure	77.74	12.42	78.60	9.37	0.90

Heart rate	80.66	12.81	81.94	7.86	0.79
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Prior to the intervention, the average treatment adherence scores in the intervention and control groups were 50.95 ± 10.33 and 48.76 ± 8.64 , respectively. Following the intervention, these scores increased to 71.58 ± 9.95 and 50.06 ± 9.42 . The paired samples t-test revealed a statistically significant rise in treatment adherence scores among patients in the intervention group after the intervention, as compared to before the intervention ($P = 0.001$). Conversely, the control group did not experience a significant change in treatment adherence scores before and after the intervention ($P = 0.43$). Furthermore, the independent samples t-test revealed substantial disparities in the average treatment adherence ratings between the two groups after the intervention ($P = 0.001$).

Table -3. Treatment Adherence in the Two Groups Before and After the Intervention

Group	Pre-intervention		Post-intervention		t- value	Paired Samples t-Test
	Mean	Sd	Mean	Sd		
Intervention	50.95	10.33	71.58	9.95	-7.38	0.001
Control	48.76	8.64	50.06	9.42	3.72	0.43
T – value	2.35		6.37			
P value	0.26		0.001			

4. DISCUSSION

The research in question primarily examined schooling that is centered on the family, whereas our study included the active participation of a family member in all of the self-efficacy training intervention sessions. The effectiveness of these interventions in enhancing medication adherence in heart failure patients highlights the crucial significance of family member participation in educational programs for the management of heart failure as a chronic ailment. In addition, Falahinia et al. discovered that including family members in patient education was more successful in improving adherence to the treatment plan compared to individual education alone ^[18]. Peyman et al. conducted a study to examine the impact of education rooted in self-efficacy theory on self-care behaviors in heart failure patients. They found a noteworthy disparity in self-care ratings between the intervention and control groups after the intervention ^[19]. Aslani et al. conducted a study at Imam Khomeini Hospital in Pol-e Dokhtar, Lorestan province to evaluate the effects of an empowerment program on self-efficacy in 56 patients with acute coronary syndrome. The study found a significant improvement in self-efficacy-based self-care behaviors in both groups by the end of the program, which supports the findings of the current study ^[20].

Gallagher et al. found that treatment adherence was below the desired level among all patients, even when they were conscious of being monitored ^[21]. In a similar vein, Dunbar et al. discovered that the intervention did not lead to an improvement in patients' medication adherence. One possible explanation for the contrasting outcomes may be the length of time that the follow-up was conducted in Dunbar et al.'s research. The follow-up and evaluation took place 4 and 8 months after the intervention, which might have led to a decrease in adherence to the treatment plans as time went on ^[22].

5. CONCLUSIONS

A training program that focuses on self-efficacy may be able to significantly enhance medication adherence in patients who are diagnosed with heart failure, according to the results of this study initiative. Consequently, the development and implementation of training programs that emphasize self-efficacy, which are both cost-effective and encourage participation from people who have heart failure, may lead to improvements in the outcomes for patients. It is possible for patients to improve their awareness and self-esteem via the use of self-efficacy tactics, which also gives them the ability to self-manage and control their symptoms. In addition, the use of approaches for clear communication, media that is understandable and illustrated, and visual instructional aids may all contribute to an improvement in the healthcare status of patients. In general, the adoption of successful education initiatives for heart failure patients is of considerable relevance in terms of reinforcing their self-efficacy and self-care habits. This is especially true for patients who have not completed high school or any other degree of education. Investigating the impact of self-efficacy-based training on adherence to treatment among patient diagnosed with heart failure is essential for enhancing healthcare outcomes in this population. By understanding how self-efficacy influence adherence behaviour, healthcare provides can tailor intervention to empower patients, improve treatments adherence and ultimately enhanced the management of heart failure.

Conflict of Interest: The authors certify that they have no involvement in any organization or entity with any financial or non-financial interest in the subject matter or materials discussed in this paper.

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