The Effect of Self-Care Guidelines on the Quality of Life for Patients with Heart Failure

ABSTRACT

Self-care is crucial for managing heart failure and is linked to better quality of life, reduced mortality, and fewer hospital readmissions. Practical self-care guidelines emphasize patient education and support to improve quality of life. **Aim of the study:** To evaluate the effect of self-care guidelines on the quality of life for patients with heart failure. **Research design:** A quasi experimental design (study & control) was used to conduct this study. **Setting:** The study conducted in cardiac care unit in EL-Fayoum university surgery hospital**.** **Methods:** A purposive sample of 80 adult patients from previously mentioned setting, allocated randomly into two equal groups (40 patients in each). **Tools**: Four tools were utilized, included: Structured interview questionnaire for patients with heart failure, patients' knowledge assessment questionnaire regarding heart failure and self-care, patients' self-reported practice checklist and World Health Organization Quality of Life-BREF (WHOQOL-BREF) questionnaire. **Results:** There was a statistical significant difference between study and control group as regarding physical, psychological, social and environmental quality of life. **Conclusion:** Application of self-care guidelines had a positive effect on the patient's outcomes as regarding level of knowledge, self-care practices, and QoL. **Recommendations:** - Develop and implement standardized protocols for HF patients care based on self-care guidelines to enhance knowledge, self-care practices and quality of life.

Key words: *Heart Failure, Self-Care Guidelines, Quality of Life*

Introduction

Heart failure (HF) is a complex clinical syndrome characterized by the heart's inability to pump blood effectively due to structural or functional impairments of ventricular filling or ejection of blood. The most common cause of HF is ischemic heart disease, but other factors, such as hypertension, valvular disease, and myocarditis, also contribute to its development. Heart failure is a common disorder worldwide with a high morbidity and mortality rate ***(Shams, et al., 2025).***

Heart failure contributes to increased healthcare costs, reduces functional capacity, and significantly affects quality of life (QoL). Accurately diagnosing and effectively treating the disease is essential to prevent recurrent hospitalizations, decrease morbidity and mortality, and enhance patient outcomes ***(Shams, et al., 2025).*** Recent research has highlighted the growing importance of prioritizing QoL rather than aggressive life-prolonging treatments in advanced HF ***(Dramba, et al., 2025).***

Self-care is a group of actions that allow the client to maintain health condition by following the therapeutic regimen, adhering to the healthcare instructions and controlling the illness' signs and symptoms. Moreover, it directs to decrease the incidence and prevalence of morbidity and mortality, lessen of hospital and health facility cost, rise patient's satisfaction, and empower the level of their QoL, particularly during chronic illnesses like kidney or heart disease ***(Shehata, et al., 2023).***

Self-care guidelines for HF emphasize patient education on treatment adherence, lifestyle modifications, symptom monitoring, and timely response to symptom changes to improve QoL and reduce mortality and hospital readmissions. Practical recommendations for healthcare professionals include advice on nutrition, physical activity, medication adherence, psychological well-being, sleep, smoking cessation, immunization, infection prevention, and symptom management, aligning with current evidence and expert consensus ***(Jaarsma, et al., 2020).***

The World Health Organization defines quality of life as an individual's perception of their position in life within their cultural and value context, and in relation to their personal goals, expectations, and concerns. ***(Kaur & Kaur, 2023).*** In the context of healthcare, QoL refers to how patients perceive the impact of their illness and treatment on their daily lives, including their social, psychological, and physical well-being. For HF patients, poor QoL is strongly associated with worse outcomes such as higher mortality, more frequent hospital readmissions and poor self-care adherence ***(Rita, et al., 2025).***

Managing HF requires a complex daily routine includes strict adherence to multiple medications and lifestyle modifications, such as dietary limitations, fluid intake, regular physical activity, and body weight monitoring. Self-care is crucial in stabilizing symptoms, improving health outcomes, preventing disease progression and comorbidities, and reducing hospital readmissions and healthcare costs ***(Jaarsma, et al., 2020).*** Nursing interventions, including education, transitional care, home visits, phone calls, and remote monitoring, have been shown to improve self-care behaviors, reduce hospitalizations, and enhance QoL ***(Longhini, et al., 2025).***

Significance of Study:

Heart failure is a rapidly growing global public health problem, with an estimated prevalence increasing from over 26 million affected individuals in 2016 to 64.3 million in 2020 and represents a significant public health burden due to its high prevalence, morbidity, mortality, poor QoL and associated healthcare costs ***(Shahim, et al., 2023).*** Although incidence rates have stabilized or declined in high-income countries, prevalence continues to rise worldwide. The burden of this disease is not merely physical; it profoundly impacts the patient's QoL ***(Sari, et al., 2025).***

Heart disease has emerged as one of Egypt's most pressing health concerns, where Cardiovascular diseases are responsible for nearly 46% of all deaths, significantly driving national morbidity and mortality rates**.** Moreover, it is estimated that, there are 1.35 million people living with HF across Egypt, Saudi Arabia, and the United Arab Emirates. In Saudi Arabia, the HF population is estimated at 320,933, with a yearly healthcare expenditure of more than one Billion. Heart failure consequences are impacting the entire society in terms of economic burden, minimized citizens' QoL and decreased productions ***(Aljohani, 2023).***

Self-care guidelines in HF significantly improve QoL, reduce complications, and lower mortality and hospital readmission rates by empowering patients to manage their condition effectively supported by patient education and psychological support ***(Jaarsma, et al., 2020).*** Nurses play a critical role in promoting self-care, especially during hospitalization, by enhancing patients' knowledge, engagement, and self-care skills through structured programs ***(Lopes, et al., 2025).***

In light of this evidence, the current study aimed to evaluate the effect of self-care guidelines on the quality of life for patients with heart failure. Hopefully, this study was giving insight about self-care guidelines to take into consideration while providing care for such group of patients to enhance quality of care and decrease morbidity and mortality rate.

Aim of the Study

The aim of the study was to evaluate the effect of self-care guidelines on the quality of life for patients with heart failure through:

1. Assess the quality of life for patients with heart failure.
2. Design self-care guidelines for patients with heart failure.
3. Implement self-care guidelines for patients with heart failure.
4. Evaluate the effect of self-care guidelines on the quality of life for patients with heart failure.

Research question:

Q1. What is the physical, psychological, social and environmental quality of life for patients with heart failure?
Q2. What is the effect of self-care guidelines on the quality of life for patients with heart failure?

Research Hypotheses:

H0: Patients who will receive self-care guidelines will not exhibit better physical, psychological, social and environmental well-being more than those who will not receive guidelines.

H1: Patients who will receive self-care guidelines will be exhibit better physical, psychological, social and environmental well-being more than those who will not receive guidelines.

Subject and Methods

Research Design:

A quasi experimental design (study & control) was utilized to achieve the aim of the present study. Quasi-experimental design is an empirical interventional study used to estimate the causal impact of an intervention on target population without random assignment ***(Hosley & Jones, 2019)***.

Setting:

This study was conducted in cardiac care unit (CCU) at Fayoum University Surgery Hospitals for increasing flow rate of the patients with HF in the selected setting. It is the only educational university hospital in Fayoum and It receives patients from all areas of Fayoum governorate. The CCU unit located in third floor and consisted of three rooms, each room covering 9 beds so the total number of beds was 27**.**

Sample:

A purposive sample of (80) adult patients with HF admitted to CCU from both genders. They were recruited from the previously mentioned setting and divided randomly into two equal groups study and control (40) patients for each group).

Study group: will receive self-care guidelines in addition to routine nursing care.

Control group: will receive hospital routine nursing care only.

Sample criteria:

Inclusion criteria:

1. Adult patients from both gender agreed to participate in the study.
2. Patients diagnosed with heart failure & hemodynamic stable
3. Patient fully conscious and able to communicate verbally that helps in acquiring knowledge and practice.

Exclusion criteria:

1. Mental disturbance patients.

Sample size:

Study subjects included a representative of total patients in CCU attendance rate (N=180) at Fayoum University Surgery Hospitals. Based on sample size equation 80 patients participated in the study and control group (40 for each group).

So, sample size was calculated by adjusting the power of the test to 80% and the confidence interval to 95% with margin of error accepted adjusted to 5% and a known total population of 80 patients using the following equation:

Type I error (α) = 0.05

Type II error (B) = 0.2

With power of test 0.80

$$n = \frac{N \times p(1-p)}{[[N-1 \times (d^2 \div z^2)] + p(1-p)]}$$

Nxp(1-p) =(180*(0.20*(1-0.20)))/

N-1 =(180-1)*

d^2/z^2 =0.0025 / 3.8416+

p(1-p) =0.20*(1-0.20)

N =80

n= Community size

z= Class standard corresponding to the level of significance equal to 0.95 and 1.96

d= The error rate is equal to 0.05

p= Ratio provides a neutral property = 0.20 ***(Chow et al., 2007).***

Tools of Data Collection:

Four tools were used to collect the data according to the following:

Tool (I): Structured interview questionnaire for patients with heart failure: It was developed and filled in by the researcher in Arabic language after reviewing relevant recent literatures ***[Androas, (2019) & Ghattas, et al., (2022)]*** to collect baseline data pertinent to the current study. It was consisted of two parts as follow:

Part (1): Patients' Socio-demographic data; it was used to assess socio-demographic characteristics of patients' with HF under study which included patients' age, gender, marital status, educational level, occupation, income, living condition, number of family members, residence, floor, home ventilation and housing location.

Part (2): Patients' past and current medical history; it was used to assess patients' past and current medical history which including; Present history that included duration of illness, factors underlying disease, symptoms that the patients complain of them as regards physiological symptoms for all body systems (respiratory, cardiovascular, nervous, sleep, movement and activity, gastro-intestinal tract and excretion systems), symptoms associated with sexual activity, psychological symptoms (anxiety, depression and fear). Past history (have hospitalized for HF, admission to CCU from HF, had heart surgery before, suffering from chronic diseases), family and smoking history.

Tool (II): Patients' Knowledge Assessment Questionnaire regarding heart failure and self-care: It was developed by the researcher after reviewing related literatures ***[Androas (2019); Beatty and College (2019); Bennett et al. (2019); Ghattas, et al., (2022) & Luniewski et al. (2019)]*** and written in an Arabic language. It was used to assess patients level of knowledge regarding HF and its' related self-care. It was filled by the researcher and consisted of two parts as the following:

Part I: Patients' knowledge regarding heart failure: It was developed to assess patient level of knowledge regarding heart failure. It is composed of 56 true or false questions distributed as the following: Normal range of heart rate for adults (3 questions), definitions (3 questions), causes (6 questions), risk factors (5 questions), manifestations (15 questions), diagnoses (11 questions), managements (6 questions) and complications (7questions).

Part II: Patients' knowledge regarding self-care: It was developed to assess patients’ level of knowledge regarding self-care. It is composed of 179 true or false, yes or no questions distributed as the following: Safe use and proper administration of prescribed medications (26 questions), quit smoking(19 questions), proper health nutrition (14 questions), exercise(20 questions), self-care related to managing the physiologic symptoms associated with HF (difficulty breathing (7 questions), chest pain (9 questions), swollen feet (9 questions), insomnia and lack of sleep (12 questions), fatigue (8 questions), anorexia(7 questions), nausea (11 questions), vomiting (7 questions), constipation (7 questions), self-care for dealing with the symptoms associated with the relationship (11 questions), and self-care for dealing with psychological symptoms associated with HF(12 questions),.

Scoring system:

The total score of patients' knowledge assessment questionnaire consisted of 235 questions; 56 regarding total score of patient's knowledge and 179 regarding self-care, the correct answers were predetermined according to literature review, a correct answer was scored one point while the incorrect answer was scored zero point and satisfactory level was detected based on ***Ghattas, et al., (2022)***; the total score was distributed as the following:

Total score was considered as the following:

- **Satisfactory level** of knowledge if score ≥ 60% = ≥ (141) grades.
- **Unsatisfactory level** of knowledge if score <60% = < (141) grades.

Tool (III): Patients' self-care reported practice (checklist): It was developed by the researcher based on recent literature review ***[Khan (2019); Hagberg et al. (2019); Sullivan and Hawthorne (2019) & Ghattas, et al., (2022)].*** To assess patients' ability to perform skills. The response of each procedure was divided into (done, not done). The observation checklist was composed of 4 skills including; (5steps) deep breathing exercise, (8steps) relaxation exercises, (42steps) range of motion exercise and (5steps) pulse measuring.

Scoring system:

The total items of patients' self-care practice observation checklists were (60 steps), These were respectively scored (0, 1). The score of the items were summed up and the total divided by the number of items, giving a mean score. These scores were converted in a percent score, means and standard deviations were computed.

Competent practice level was detected based on ***Ghattas, et al., (2022)***; Each step in each procedure took one grade if correctly done and took zero if done incorrectly/ not done; the total score was distributed as the following:

- **Satisfactory level** of practice if score ≥ 60% ≥36 grades.
- **Unsatisfactory level** of practice if score < 60% ≤ 36 grades.

Tool (IV): World Health Organization Quality of Life-BREF (WHOQOL-BREF) Questionnaire: The WHOQOL-BREF was developed by **GENEVA (1996).** It was used to assess QoL for patient with HF. It was translated into an Arabic language. The items of the WHOQOL-BREF questionnaire included (26) question. The items of the WHOQOL-BREF questionnaire was divided into 4 domains (Physical health domain, psychological domain, social relationships domain and environmental domain).

Scoring system:

WHOQoL-BREF composed of 26 items, which assess the following broad domains: physical health (7 items), psychological health (6 items), social relationships (3 items), and environmental factors (8 items), as well as the overall QoL and general health (2 items). Each item is rated on a five-point likert scale that ranged from 1 to 5 where 1 is the lowest score and 5 are the highest score.

The score was categorized according ***(El-Deen, et al 2025)*** into:

- Good quality of life: ≥75% (98 degree)
- Average quality of life: 50<75% (65-98 degree)
- Poor quality of life: <50% (65 degree).

II. Operational design:

The operational design included preparatory phase, Content validity and reliability, pilot study and field work.

A-Preparatory phase:

This phase included the reviewing of related literatures and theoretical knowledge of various aspects of the study using books, articles, internet periodicals and magazine, to develop the tools for data collection.

B-Validity and reliability:

Validity:

It was done for used tools to evaluate each item on the tool as to its degree of representation of the variable to be tested, as well as the tool over all appropriateness for use in examining the variable within the proposed study population. The content validity of the used tools was done by a panel of five experts from critical and medical surgical nursing department. The panel of experts was from different academic categories (two professors and three assist professors), who reviewed the content of the tools for comprehensiveness, accuracy, clarity, relevance and applicability. Suggestions were given and modifications were done based on experts' judgment and the final form was developed.

Tool validity: Content validity as a qualitative form of validity that evaluates whether the expressions contained in the measuring instrument represent the phenomenon intended to be measured.

Reliability:

Reliability of instrument is "the extent to which the instrument yields consistent, reproducible estimates of what is assumed to be an underlying true score" ***(Artner, 2021).*** The degree to which an instrument measures the same way each time it used under the same condition with the same subjects. Reliability of the tool was tested to determine the extent to which the questionnaire items are related to each other. The Cronbach's alpha model, which is a model of internal consistency, was used in the analysis. Statistical equation of Cronbach's alpha reliability coefficient normally ranges between 0 and 1. Alpha Cronbach reliability analysis of the used tool: Knowledge (0.795), practice (0.834) and QoL (0.758). Higher values of Cronbach's alpha (more than 0.7) denote acceptable reliability.

Ethical consideration:

An ethical approval to conduct the proposed study was obtained from the Scientific Research, Ethical Committee of the faculty of Nursing, Helwan University. An official permission was obtained from the administrative authority of the selected setting for the current study.

The researcher obtained an oral consent from the studied patients, explaining the purpose and nature of the study, stating the possibility to withdraw at any time, confidentiality of data assured by the researcher by using codes to identify participants instead of names or any other personal identifiers.

Pilot study:

A pilot study was carried out on 10% of the patients under the study to evaluate the applicability, clarity, efficiency and time needed to fill in each tool. Also, it helps to find the possible obstacles and problems that might face the researcher and interfere data collection. The necessary modifications were done, where some items and questions were omitted and others were added based on the result of the pilot study. After modification, the final form of the tools was developed. The eight patients who included in the pilot study were excluded from the main study.

Field Work:

Sampling was started and completed within nine months from December 2024 to the end of August 2025. Before starting in data collection; the purpose of the study was simply explained to the patients and their families who agree to participate in the study prior to any data collection. An oral consent was obtained from each participant prior to data collection after explaining the aim of the study. This study introduced self-care guidelines designed to assist patients with HF in acquiring new knowledge about their self-care practice to improve quality of life. It included four phases: assessment, planning and design, implementation and evaluation phases.

I-Assessment Phase:

During this phase, the researcher visited the selected setting regularly, three days per week, selected patient according to inclusion criteria, and then assigned them randomly to either a study or control group. Initial assessment was done by the researcher for all study subjects in study and control groups regarding to participants' age, gender, educational level, occupation, and health history. Determine whether the deficit is due to lack of needs, lack of skills, or limited ability. Data collection was held through structured interviews and medical record chart. During this phase each patient was assessed individually and data collection was filled by the researcher, by using tools (I), tool (II), tool (III) and tool (IV) for study and control groups as follows:

Tool I: Was utilized to assess patients' socio-demographic characteristics and medical history data that filled for the study and control groups, it took around 15 minutes.

Tool II: To assess patients level of knowledge regarding HF and self-care; it took around 20-45 minutes.

Tool III: To assess patients' self-care practice, including the following (deep breathing exercise, relaxation exercises, range of motion exercise and pulse measuring), it took around 20 minutes for every patient.

Tool IV: To assess quality of life specific to patient with heart failure, it took around 15-20 minutes.

The researcher collected the data from the patients three days per week (Saturday, Monday & Thursday) in which the data were collected from 2-3 patients each day.

II- Planning and design phase:

This phase included analysis of the pre-test findings; where goals and outcomes are formulated that directly impact patient care. The researcher plan intervention, design the educational section's content according to the patient's needs. Detected needs, requirements and deficiencies were translated into the aim and objectives of the educational program sections in the form of guidelines booklet. The objectives of the guidelines were guided by the previously determined patients' educational needs in order to improve patient's knowledge, self-care practice and QoL specific to patient with heart failure.

The researcher designed and developed an instructional colored booklet in Arabic language to be given for each patient in the study group in the implementation phase. It was formulated in simple, easily readable Arabic words and completed with photos and illustrations in order to improve patient's knowledge, self-care practices and quality of life.

The researcher set up a teaching session plan covering all objectives. These objectives were categorized into general and specific objectives. The researcher determined the timetable of sessions, teaching strategies, (methods and media) and learners' activities.

III- Implementation phase:

Based on the results obtained from the interviewing and observational sheets, as well as literature review, the self-care guidelines were developed by the researcher. It was implemented immediately after the pre-test. No intervention was performed for the control group during the study.

This included implementing the designated nursing guidelines for the study group (40) patient, in term of educational sessions, instructions and follow up. the program was divided into 6 sessions (2 theoretical, and 4 practical sessions) each session was implemented in one day. The duration of each session varied, according to its contents as well as the clients' response. Divided study patients into 8 groups each group included 5 patients.

Each participant within the study group obtains a copy of the self-care guidelines booklet. The researcher used pictures for illustration, and video to educate the patient. The researcher started teaching lectures from 9 am to 1 pm 3 days/ week.

IV - Evaluation phase:

Evaluation phase aimed to reassess patients after implementation of self-care guidelines to identify progress in term of differences in patients' level of response from baseline. Both the study group and the control group were evaluated using the posttest questionnaire which was the same format of pre-test in order to compare the changes in patients' knowledge, self-care practice and QoL using assessment tools (II, III, IV) post 2 weeks and follow up was done 6 months after implementation of self-care guidelines.

III- Administrative design:

An official letter was issued from the Dean of the Faculty of Nursing, Helwan University to the manager Fayoum University Surgery Hospitals. At which the study was conducted, explaining the purpose of the study and requesting the permission for data collection from the study and control group.

IV. Statistical design:

The data were collected and coded to facilitate data manipulation and double entered into Microsoft Access, then analyzed, and presented in the form of frequencies and percentages or mean± SD, in the form of tables, figures, and diagrams as required and suitable statistical tests were used to test the significance of the results obtained.

- Data analysis was performed using Statistical Package of Social Science **(SPSS),** and computerized in (IBM SPSS Statistics for Windows, Version 20.0. Armonk, NY: IBM Corp.).

- Data analyzed was done using a software package. Data were presented using descriptive statistics in the form of frequencies and percentages for qualitative variable, and mean and standard deviations for quantitative variables**.**

-Statistical presentation and analysis of the present study was conducted, using the mean, standard deviation, **unpaired student t-test** was used to compare between two groups in quantitative data, **chi-square test** was used to compare between groups in qualitative, **ANOVA test** was used for comparison among different times in the same group in quantitative data, **linear correlation coefficient** was used for detection of correlation between two quantitative variables in one group.

Results:

Table (1): Frequency and percentage distribution of socio-demographic characteristics of the study and control groups (n=80):

Item	**Study(n=40)**		**Control(n=40)**		**Chi-square**	
	N	**%**	**N**	**%**	**X^2**	**P-value**
Age						
<25	3	7.5	2	5.0	0.844	0.932
25- <35	3	7.5	5	12.5		
35- <45	7	17.5	8	20.0		
45- <55	14	35.0	13	32.5		
55 or more	13	32.5	12	30.0		
Mean±SD	46.95 ± 12.09		47.24 ± 11.81			
Gender						
Male	10	25.0	16	40.0	2.051	0.152
Female	30	75.0	24	60.0		
Marital status						
Married	36	90.0	32	80.0	1.569	0.210
Widowed	4	10.0	8	20.0		
Education level						
Don't reads and writes	15	37.5	18	45.0	1.635	0.651
Reads and writes	11	27.5	13	32.5		
Intermediate/ diploma education	10	25.0	7	17.5		
University education	4	10.0	2	5.0		
Occupation						
Manual/physical work	21	52.5	23	57.5	0.202	0.653
Not working	19	47.5	17	42.5		
Monthly income from patient's opinion						
Sufficient	7	17.5	9	22.5	0.313	0.576
Insufficient	33	82.5	31	77.5		
Living condition						
Alone	9	22.5	12	30.0	0.581	0.446
With family	31	77.5	28	70.0		
Number of family members						
Less than 5 members	13	32.5	14	35	0.056	0.813
More than 5 members	27	67.5	26	65		
Residence						
Rural	30	75.0	27	67.5	0.549	0.459
Urban	10	25.0	13	32.5		

Table (1): shows that, regarding age distribution, the mean age was nearly similar between the study and control groups (46.95 ± 12.09, 47.24 ± 11.81 years respectively), with the largest proportion in the (45–<55) years' category. Concerning gender, males constituted (25.0%) of the study group compared to (40.0%) of the control group, while females represented the majority in both groups. Concerning marital status, (90%, 80%) respectively of study and control groups were married.

As for educational level, a large proportion in both groups are either not able to read and write or have basic literacy, illiteracy was more frequent in the control group (45.0%) compared to (37.5%) in the study group. Regarding occupation; (52.5%, 57.5% respectively) of study and control groups have manual/physical work, with respect to monthly income, (82.5%, 77.5% respectively) of study and control groups reported that, it was insufficient to cover treatment costs. Living condition (77.5%, 70% respectively) of study and control groups lived with their families, and all had family size more than five members.

In terms of residence, (75%, 67.5% respectively) of study and control group have rural areas. No statistically significant differences were observed between study and control groups across the listed sociodemographic variables (p > 0.05).

Table (2): Frequency and percentage distribution of the present medical history of the study and control groups (n=80):

Item	Study (n=40)		Control (n=40)		Chi-square	
	N	%	N	%	X^2	P-value
Duration of illness (years)						
<5 years	6	15.0	9	22.5	0.738	0.390
5 years or more	34	85.0	31	77.5		
Factors consider the cause of HF						
Psychological stress	38	95.0	36	90.0	0.721	0.396
Smoking	20	50.0	23	57.5	0.453	0.501
Excessive physical exertion	22	55.0	24	60.0	0.205	0.651
Obesity	25	62.5	27	67.5	0.220	0.639
Rheumatic fever on the heart	23	57.5	27	67.5	0.853	0.356
Genetic factors	35	87.5	32	80.0	0.827	0.363

Table (2); illustrates the distribution of present medical history of study and control groups. Regarding duration of illness, (85%, 77.5% respectively) of study and control group had HF for 5 years or more, with no significant difference between groups. In relation to perceived factors that causes of HF (95%, 90% respectively) of study and control group psychological stress were the most frequently reported causes in both groups. Overall, the comparison showed no statistically significant differences between study and control groups in present medical history (p > 0.05).

Table (3): Frequency and percentage distribution of the past medical - family & smoking history related to heart failure of the study and control groups (n=80):

Item	Study (n=40)		Control (n=40)		Chi-square	
	N	%	N	%	X^2	P-value
Past medical history						
1-Previous hospital admission						
Yes	34	85.0	31	77.5	0.738	0.390
No	6	15.0	9	22.5		
2-Previous admission to ICU						
Yes	24	60.0	22	55.0	0.205	0.651
No	16	40.0	18	45.0		
3-Previous cardiac surgery						
Yes	20	50.0	24	60.0	0.808	0.369
No	20	50.0	16	40.0		
4-Suffer from chronic diseases						
Yes	28	70.0	30	75.0	0.251	0.617
No	12	30.0	10	25.0		
Chronic diseases						
Hypertension	11	39.3	13	43.3	0.098	0.754
Diabetes	10	35.7	11	36.7	0.006	0.940
Osteoporosis	5	17.9	4	13.3	0.226	0.634
Anemia	2	7.1	2	6.7	0.005	0.943
Family history						
A family member with a heart condition						
Yes	20	50.0	24	60.0	0.808	0.369
No	20	50.0	16	40.0		
Degree of relationship						
First relations	13	65.0	15	62.5	0.181	0.914
Second relations	4	20.0	6	25.0		
Third relations	3	15.0	3	12.5		
Smoking history						
Smoker						
Yes	15	37.5	19	47.5	0.818	0.366
No	25	62.5	21	52.5		
Timing of smoking						
<5 years	2	13.3	4	21.1	0.344	0.558
5 years or more	13	86.7	15	78.9		

>0.05 Not significant <0.05 significant <0.001* High significant*

Table (3); demonstrates the past, family and smoking history of the study and control groups of HF patients. As regard to past history (85.0 % ,77.5% respectively) of study and control group had a previous history of hospitalization, (60.0%, 55.0% respectively) of them were admitted to ICU and (50.0%, 60.0% respectively) of them had undergone prior cardiac surgery.

Regarding chronic disease, (70.0%, 75.0% respectively) of study and control group reported chronic diseases, most commonly hypertension and diabetes, with no significant differences between groups (p > 0.05). A family history of heart failure was observed in (50.0%, 60.0% respectively) of study and control group with (65.0% ,62.5% respectively) of them first relation.

As regard to smoking history, (37.5%) of the study group and (47.5%) of the control group were smokers, with (86.7% ,78.9% respectively) of them reporting smoking for more than five years.

Table (4): Frequency and percentage distribution of studied patients' total knowledge across different phases in study and control groups (n=80):

Total knowledge	**Study (n=40)**				**Control (n=40)**				**Chi-square**	
	Satisfactory		**Unsatisfactory**		**Satisfactory**		**Unsatisfactory**			
	N	**%**	**N**	**%**	**N**	**%**	**N**	**%**	X^2	**P-value**
Pre	13	32.5	27	67.5	12	30	28	70	0.058	0.809
Post	32	80	8	20	15	37.5	25	62.5	14.907	<0.001*
Follow up	30	75	10	25	13	32.5	27	67.5	14.532	<0.001*

>0.05 Not significant <0.05 significant <0.001* High significant*

Table (4); reveals that, most patients in both groups had unsatisfactory total knowledge, with no significant differences between study and control groups pre self-care guidelines implementation (p > 0.05). Following self-care guidelines, the study group demonstrated a substantial increase in satisfactory knowledge, rising from (32.5%) to (80.0%) (+47.5%), compared with only (37.5%) in the control group, showing highly significant differences (p < 0.001). At follow-up, the study group maintained a high level of satisfactory knowledge.

Figure (1): Percentage distribution of the studied patients' total practice across all activities in study and control groups (n=80).

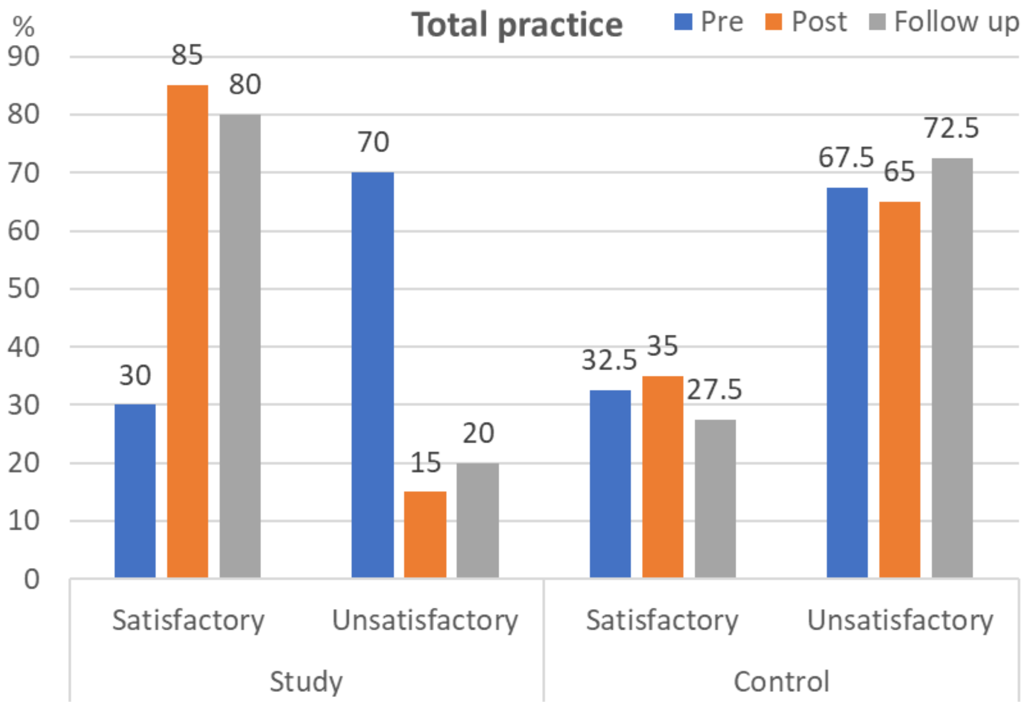

Fig. (1): Reveals that, both groups demonstrated low levels of satisfactory total practice, with no significant differences between the study and control groups pre self-care guidelines implementation ($p > 0.05$). After self-care guidelines implementation, the study group showed improvements, with satisfactory total practice rising from (30.0%) to (85.0%) (+55.0%), while the control group showed only slight change (35.0%). These improvements were highly significant ($p < 0.001$). and that this improvement was sustained in follow up phase.

Table (5): Frequency and percentage distribution of studied patients' total quality of life across different phases in study and control groups (n=80):

Total QOL	Study (n=40)						Control (n=40)						Chi-square	
	Good		Average		Poor		Good		Average		Poor			
	N	%	N	%	N	%	N	%	N	%	N	%	X^2	P-value
Pre	5	13	10	25	25	63	7	18	9	23	24	60	0.406	0.816
Post	30	75	8	20	2	5	6	15	11	28	23	58	34.114	<0.001*
Follow up	29	73	9	23	3	8	6	15	13	33	21	53	29.334	<0.001*

>0.05 Not significant <0.05 significant <0.001* High significant*

Table (5): Reveals that, both the study and control groups had low levels of total QOL, with no significant differences pre self-care guidelines implementation ($p > 0.05$). Post self-care guidelines implementation, the study group showed substantial improvement, with good total QOL rising from (13.0% to 75.0%), compared to control group. These differences were highly significant ($p < 0.001$) and largely maintained at follow-up (73.0% in the study group vs. 15.0% in the control group).

Table (6): Correlation between total knowledge, total practice, and total quality of life among the study group (n=40).

	Study (n=40)				Control (n=40)			
	Total knowledge		Total practice		Total knowledge		Total practice	
	r	P-value	r	P-value	r	P-value	r	P-value
Pre								
Total practice	0.395	<0.001*			0.302	<0.001*		
Total QOL	0.484	<0.001*	0.416	<0.001*	0.365	0.132	0.390	<0.001*
Post								
Total practice	0.588	<0.001*			0.392	<0.001*		
Total QOL	0.628	<0.001*	0.532	<0.001*	0.278	0.028*	0.322	0.012*
Follow up								
Total practice	0.612	<0.001*			0.251	0.049*		
Total QOL	0.427	<0.001*	0.491	<0.001*	0.222	0.092	0.268	0.030*

*: *Significant at P ≤ 0.05*

Table (6): illustrates that; there was a significant positive correlation between patients' knowledge, practice, and quality of life within the three tests.

Discussion

Heart failure is one of the most prevalent and chronic health-condition in Egypt which needs an expensive health-cost and leads to patients' inability to achieve their roles in the community. As well, it is a serious health problem that faced the healthcare workforce all over the world and can cause death among 18% of those who have such chronic disease (***Shahim, et al, 2023).***

Self-care in HF patients is generally associated with improved QoL by promoting symptom management, medication adherence, and lifestyle changes, which can reduce hospitalizations and enhance physical and emotional well-being. Several studies report a positive correlation between self-care behaviors and better QoL, highlighting that patients with higher self-care engagement tend to experience fewer symptoms and improved daily functioning ***(Seid, et al., 2023).***

In the present study, regarding to socio-demographic characteristics of the studied patients revealed that, the mean age of the studied patients in both study and control was nearly similar between groups (46.95 ± 12.09 , 47.24 ± 11.81 years) respectively, with the largest proportion in the (45–<55) years' category. From the researcher point of view, it could be inferred from this that cardiovascular disease is linked to advanced age.

Concerning to gender and marital status, majority of them were females and married. According to the researcher point of view, this might be the majority of the patients in the study and control groups were age group got married during this age according to their culture. Also this may reflect that married people might be more liable to heart disease more than singles because they always facing physical and psychological stress of their social role.

This finding agrees with ***Ramadan, et al., (2024)*** who conducted "The effectiveness of e-health interventions-based self-care on health-related quality of life for patients with heart failure" reported that, less than half of the patients were between the ages of 40 and 60, less than two-thirds of them were female and over two-thirds of the patients were married.

As regards the educational level, occupation, income and living condition, the results of present study revealed that, less than half of the studied patients in both the study and control groups could not read and write, more than half of them had manual/physical work, with respect to monthly income the majority in both groups reported that it was insufficient to cover treatment costs. From researcher point of view this due to the changes of their work abilities and increase their daily living finance because of the disease treatment cost. Concerning living condition most patients in both groups lived with their families and nearly two thirds of them had family size more than five members.

This result was in agreement with ***Mahmoud et al. (2023),*** who conducted" The effectiveness of Orem-based self-care education on knowledge and self-care behaviors among patients with heart failure" reported that, half of the patients were illiterate, when it came to the work of the patients, it is observed that over two fifths of the studied patients worked in physically demanding jobs. Furthermore, found that most of the studied patients live with others and didn’t have enough income. On the opposite side, the findings are inconsistent with those of ***Wallström et al. (2020)***, who illustrated that over half of the studied patients live alone.

As regards to residence, the present study shows that, rural areas predominated in both group. This study result is congruent with ***Ghattas et al. (2022),*** who conducted" Effect of self-care guidelines on the knowledge, practice and clinical outcomes of patients with chronic heart failure disease" who found that, more than two thirds of patients were living with more than five family members and most of them from rural area.

The socio-demographic characteristics of subjects in both study and control groups, were not significantly different; this means that the participants were selected from identical population of patients undergoing heart failure with good random allocation obtained. This finding agrees with ***Mahmoud, et al., (2025),*** who conducted "Nursing Insights: A descriptive correlational study linking self-efficacy, self-care behaviors, and quality of life in heart failure care" reported that, most patients randomly assigned were followed, there was little potential for bias.

Concerning present medical history of the study and control groups: the present study shows that, the majority of patients in both groups suffering from HF for 5 years or more mainly due to bad psychological state following by genetic factors in both group. This finding go in the same lines with ***Mahmoud, et al (2025),*** reported that, more than one-third of the studied patients had HF for more than ten years.

Also, in the same line with ***Balkan, et al (2022),*** who conducted " Association of perceived stress with incident heart failure" reported that, links major life events as bad psychological state with increased depression and perceived stress in HF patients. According to the researchers, this could be linked to the increasing death rate among HF patients, especially those who are old age or have comorbidities.

In relation to past medical history, a majority in both groups (study and control) had a previously admitted hospital, more than half of them were admitted to ICU and had prior cardiac surgery and three quarters of them suffer from chronic disease most commonly hypertension and diabetes. From researcher's point of view, the finding may be due to that most of the studied patients had the disease for more five years and they had frequent exacerbation and high rates of prior hospitalization and ICU admission indicate a history of clinical instability and disease progression.

This finding agree with ***Mahmoud, et al. (2023),*** who found that, more than two thirds of the studied patients had been hospitalized for more than two times and comorbidities were present in majority of the patients with hypertension making up most of such condition and over two fifths having diabetes mellitus. Also, in the same line with ***Niriayo, et al., (2024)*** who conducted "Prevalence and predictors of poor self-care behaviors in patients with chronic heart failure" reported that nearly two-thirds of participants had been hospitalized once or more in the past year and more than two thirds had one or more comorbidities as diabetes and hypertension.

In relation to family history, the current results found that, half of the studied patients in both study and control groups had family history for HF from first degree relation. From researcher's point of view, this may be due to that family history of heart disease is considered a risk factor are more strongly linked to HF. This finding agree with ***Mohammed, et al., (2024)*** who conducted" Effectiveness of nursing educational program on patients with heart failure in Sulaimani City" illustrated that, three quarter percent of the patients had a family history of heart disease and had a first-degree relative with the condition.

In relation to smoking history, the current study revealed that, over one third of study and less than half of control group were active smokers from more than five years, Additionally, over one-third of the study group and nearly half of the control group lived with a smoker. More than half of the patients under investigation did not smoke. This finding may be related to the fact that the analyzed sample contained the biggest proportion of females, as smoking is not customarily associated with ladies in Fayoum society. This finding are inconsistent with ***Al-Sutari, & Abdalrahim, (2024)*** who reported that, more than one-third of the participants were smokers.

In respect to the patients' total knowledge the results of the current study indicated that, the majority of patients in both groups (pre self-care guidelines impementation) demonstrated unsatisfactory knowledge regarding HF and self-care, with no significant differences observed. After self-care guidelines impementation (post intervention and follow up), the study group showed a marked improvement, with satisfactory level of knowledge regarding HF and self-care. These improvements were highly significant when compared with the control group.

From researcher's point of view, unsatisfactory level of the studied patients' knowledge pre the designed self-care guidelines reflected the lack of continuous education and in-service training program for such group of patients, also this indicates that patients' level of knowledge not affected by the long duration of illness.

The significant improvement in level of the studied patients' knowledge post implementation of self-care guidelines this might attribute to effectiveness of guidelines on enhancing patients' knowledge and empower patients through increased their awareness regarding their responsibilities toward manage their disease and participating in self- care that lead to behavior modification and improve QoL.

This study result is in agreement with ***Mahmoud, et al., (2023)*** who demonstrated that, there was a highly statistically significant improvement in the mean scores of patients' total knowledge immediately following, and one month following the implementation of the Orem-based self-care education. Also in the same line with, ***Wang, et al. (2020)*** who conducted "Theory-guided interventions for Chinese patients to adapt to HF" clarified that, the intervention group's posttest means scores on HF knowledge had increased, and this improvement was highly statistically significant ($p<0.001$).

In respect to the patients' total practice: The results in the current study represented that, both groups demonstrated low levels of satisfactory total practice (pre self-care guidelines implementation) with no significant differences between the study and control groups. After the self-care guidelines implementation, the study group showed substantial improvements, with satisfactory total practice compered to control group. These improvements were highly significant ($p < 0.001$) and were largely maintained during follow-up phase.

The significant improvement in level of the studied patients' practice post the self-care guidelines implementation might be related to the skills acquired during implementation of self-care guidelines regarding breathing exercise, relaxation exercise, range of motion exercise and pulse measuring which affect positively their practice level. Also, might be due to that the improvement in practical level of patients are linked with their relevant scientific knowledge.

This study result is in agreement with ***Ghattas, et al. (2022)*** represented that, there was significant improvement in the studied patients' practice post guidelines implementation compared to pre with highly statistically significant differences. Also, the result in the same line with ***Mohammed, et al., (2024)*** who found that, the implementation of the nursing educational program showed highly significant differences (p= 0.001). The improvement of intervention group was better and higher than control group.

The results in the current study revealed that, the study and control groups showed low levels of total QoL across all domains, with no significant differences pre self-care guidelines implementation ($p > 0.05$). Following the self-care guidelines implementation, the study group demonstrated marked improvements with good total in overall QoL and its domains and largely maintained at follow-up compered to control group. From researcher's point of view, this enhancement can be attributed to the pivotal role of patient education in equipping individuals with knowledge, skills, and a supportive framework that foster positive attitudinal changes, which are fundamental for maintaining and promoting health.

This study result is in agreement with ***Sari, et al., (2025)*** who conducted "The relationship between self-care and quality of life in heart failure patients: a correlational study" who found that, the majority of respondents reported having a good quality of life among heart failure patients. Also, in the same line with ***El-Deen, et al., (2025)*** who found that, a minority of the studied patients had a good total quality of life preprogram which improved to majority of them in the post 2 months.

As regard to correlation between total knowledge, total practice, and total QoL at pre-, post-, and follow-up phases, the results of present study revealed that, in pre-test; total knowledge had a weak, significant positive correlation with total practice and with total QoL. In post-test and follow up; there are significant strong positive correlations were observed total knowledge correlated strongly with total practice and total QoL. These results might be due to the self-care guidelines implementation positively affected on increasing patients' knowledge which in turn affected on increasing their self- care and QoL.

This study result is in agreement with ***Kassab, (2021)*** who conduct "Effect of sociodemographic correlates on quality of life of HF patients" who found that, positive correlation between various studied demographic variables and overall QoL of the HF patients. Also, in the same line with ***El-Deen, et al., (2025)*** showed a highly positive significant correlation between total knowledge score with total self-care, pre and post 2 months of program implementation $p< 0.001^{**}$ and also positive significant correlation with total quality of life preprogram $p= 0.023^{*}$ and a highly significant correlation post 2 months $p< 0.001^{*}$.

Conclusion

Based on the findings of the study, it can be concluded that, the self-care guidelines implementation, there was a positive effect on the improved patient's outcomes among study group as regarding level of knowledge, self-care practices, and QoL compared to control group, as well as there was statistically positive correlation with high significance between knowledge, self-care practice, and quality of life.

Recommendation

1. Integrate self-care guidelines into nursing curricula to emphasize patient empowerment and self-care practices.
2. Develop self-care guidelines for patients with heart failure, focusing on enhancing self-care skills, physical, psychological, social, and environmental domain of QoL

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