



## Compliance With Diet and Activity Control Regimens by Congestive Cardiac Failure Patients in Public Facilities in Anambra State

<sup>1</sup>Ekweozor UC\*, <sup>2</sup>Nwoke BEB, <sup>3</sup>Obasi KO, <sup>3</sup>Chinedu-Elonu PO, <sup>3</sup>Eberendu IF

<sup>1</sup>NPI Idemili North Anambra

<sup>2</sup>Department of Animal and Environmental Biology, Faculty of Sciences Imo State University, Owerri

<sup>3</sup>Department of Public Health Faculty of Health Science Imo State University, Owerri

DOI: 10.5281/zenodo.11390850

Submission Date: 10 April 2024 | Published Date: 30 May 2024

\*Corresponding author: [Ekweozor UC](#)

NPI Idemili North Anambra

### Abstract

In patients with congestive heart failure, the study evaluated the patients' degree of adherence to diet and activity control plans. Additionally, it is limited to the investigation of congestive heart failure and its health implications. Using a non-experimental description design, the investigation was conducted. Patients or clients with congestive heart failure between the ages of 58 and 65 who were registered and receiving medical care in tertiary healthcare facilities in Anambra State make up the study's target population. Medical doctors, nurses and midwives, employees of the chosen postsecondary institution, and patient relatives made up the group of health workers. This study used interview techniques and a multiple-choice questionnaire as its tool for gathering data. These techniques are employed in order to gather the required data. The administered questionnaire comprised five research questions, twenty questions, and the respondents' personal information. To obtain the required information, the researcher kept up a positive rapport. Interviews were conducted with interviewers as well. A random sample of 300 respondents was chosen, and an interview was also held once the data was analyzed. Congestive heart failure patients' level of education and adherence to diet and activity regimens were shown to be associated with the condition in Anambra State. Diet and activity control regimens were also found to be connected to patient compliance. Therefore, the study suggests providing these patients with ongoing health education.

**Keywords:** diet, activity control regimens, compliance, congestive cardiac failure.

## INTRODUCTION

Non-pharmacological interventions such as diet and exercise control programs enhance the care of patients with congestive heart failure. These include dietary changes, moderate physical activity, and compliance—which is the capacity to follow directions and may have a positive or negative correlation with congestive heart failure (CCF)—among these indicators. Almost 6 million Americans suffer from congestive heart failure. Congestive heart failure, which is the most common cause of hospitalization for adults over 65, affects over 670,000 people annually [1]. Congestive heart failure (CHF) is characterized as "a complex clinical syndrome that results from any structural or functional impairment of ventricular filling or ejection of blood," according to the American College of Cardiology (ACC) and the American Heart Association (AHA).

The primary cause of CHF and the main cause of death globally is ischemic heart disease. Globally, CHF is a prevalent condition with a high rate of morbidity and mortality. With an estimated 26 million cases globally, CHF lowers functional capacity, raises healthcare expenses, and has a major negative impact on quality of life. To reduce morbidity and mortality, avoid repeat hospital stays, and improve patient outcomes, the disease must be identified and treated appropriately [2].

Heart failure's (HF) etiology is broad and diverse. Regardless of the underlying etiology, the overall therapy strives to stabilize hemodynamic state and relieve systemic and pulmonary congestion. A comprehensive strategy including patient education, the best possible pharmaceutical delivery, and a reduction in acute exacerbations is needed to manage heart failure (HF) [3].

Although historically underdiagnosed, patients with HFpEF account for 44% to 72% of CHF cases. LV EF  $\geq$  50% on an echocardiography (echo), showing signs of compromised diastolic function. The main risk factor is hypertension (HTN), with diabetes, female sex, and advanced age among the major risk factors [5]. Congestive Cardiac Failure (CCF) is characterized by a heart that beats less efficiently than usual, not that it has ceased beating altogether. Blood flows through the body and heart more slowly for a variety of potential reasons, which raises heart pressure. [6]

The heart is unable to pump enough oxygen and nutrients to meet the body's needs because of the aforementioned factors. In response, the heart's chambers may stiffen and thicken or expand to accommodate more blood to pump throughout the body. Although the heart's muscle walls may eventually weaken and lose their ability to pump blood as effectively, this helps to keep the blood flowing. The body may respond by retaining fluid (water) and salt as a result of the kidneys' reaction [7]. If fluid builds up in the arms, legs, ankles, feet, lungs or other organs, the body gets congested and congestive heart or cardiac failure is the phrase used to describe the disease. [8]

According to a report, the phrase "congestive cardiac failure" is imprecise when referring to the condition that arises when the heart is unable to sustain a sufficient cardiac output or can do so only at the cost of an elevated filling pressure. They also mentioned that in its mildest form, cardiac output is sufficient during rest and only becomes insufficient during physical activity or other types of stress or activity when the metabolic requirement rises. As a result of the heart's inability to pump blood efficiently, the body does not receive enough oxygen and nutrients, which can cause issues including exhaustion and breathing difficulties [10].

The goals of congestive heart failure treatment are to lessen symptoms and stop the illness from getting worse. The treatment plan calls for the use of heart medication, dietary adjustments, activity control plans, and strict adherence to guidelines [11].

As obesity is a risk factor for cardiac failure, it was hypothesized that patients with congestive cardiac failure should be educated to take a variety of non-pharmacological steps to improve the management of their condition. These steps include losing weight, engaging in moderate physical activity when symptoms are mild or bed rest when symptoms are severe, and changing their diet.

Congestive heart failure is viewed as a disease that is outside the scope of conventional medical care in Nigeria, particularly among the rural populace. It is also perceived as a punishment meted out by the forefathers or oracles, or as a false oath taken by an individual asserting something that is not genuinely their own. Patients and family members will so seek medical attention. They perish from ignorance, never realizing the need of food, activity moderation, and Orthodox medical care. Given how frequently these patients need to be readmitted, poor compliance could be a barrier to efficient care. Individuals' attitudes, beliefs, and ignorance, which account for health behaviors, are obstacles to non-compliance.

The degree to which an individual's conduct aligns with the therapeutic prescription when it comes to adhering to a diet, controlling their activities, and making lifestyle modifications is commonly referred to as compliance. Compliance is a general concept that refers to concordance and conformity. Compliance is defined as the patient's active participation and the degree to which their behavior complies with a healthcare provider's established guidelines. [13].

The symptoms of congestive heart failure can worsen due to medication and dietary noncompliance, which frequently results in hospitalization. The degree to which a person adheres to a therapeutic prescription when taking medication, adhering to a diet, or making lifestyle changes is sometimes referred to as compliance. Congestive heart failures are a major health concern for the general public as well as for patients and their families [14].

Congestive cardiac failure is a pathophysiologic state in which the heart is unable to pump blood at a rate appropriate for the needs of the metabolizing tissues or can only do so with an elevated diastolic filling pressure due to an abnormality in cardiac function, whether detectable or not [15]. In addition to being brought on by myocardial failure, congestive cardiac failure can also happen when there is tremendous demand on the heart even in the midst of nearly normal cardiac function. Circulatory failure is invariably caused by congestive cardiac failure; however, this is not always the case, as circulatory failure can also result from a number of non-cardiac conditions (such as hypovolemic shock and septic shock) when there is normal, mildly impaired, or even supernormal cardiac function.

Compensatory processes raise blood volume, cardiac filling pressure, and cardiac muscle mass in order to keep the heart pounding [16]. Congestive heart failure may worsen as a result of the heart's growing incapacity to contract and relax. This is true even with these mechanisms in place. Acute congestive heart failure has begun, as seen by the enlarged heart shape and fluid buildup at the bottom of the lungs on this chest X-ray [17].

The symptoms of congestive heart failure include an accelerated heartbeat, edema (swelling), and evidence of venous congestion, which lead to exhaustion. Breathlessness is a common symptom of left ventricular (LV) failure that tends to get worse with time [18]. The New York Heart Association (NYHA) has four classes in their congestive heart failure categorization system, which is based on many characteristics. The correlation between a patient's symptoms and the level of physical exertion required to elicit them determines these groups.

The American Heart Association and College of Cardiology's (ACC/AHA) criteria for congestive heart failure supplement the New York Heart Association's (NYHA) classification by taking the disease's course into consideration [19]. Strict adherence to diet and activity control regimens is crucial for the effective management of congestive heart failure, as they are a major and essential component of the treatment of the condition. Evaluating the degree of adherence to dietary and exercise regimes among congestive heart failure patients in Anambra State's teaching and secondary hospitals is crucial.

## **MATERIALS AND METHODS**

This research is intended to identify the diet and activity control regimen, compliance among congestive cardiac failure patients in public health facilities in Anambra State, in order to achieve this aims certain procedures and methods were adopted by the researcher.

### **RESEARCH DESIGN**

The study is limited to analysis of diet and activity control regimens, compliance among congestive cardiac failure patients in public health facilities in Anambra State. It is also restricted to the examination health implications on congestive cardiac failure. The study was undertaken using a non-experimental description design

### **Research Setting**

The research was carried out in the Chukwuemeka Odimegwu Ojukwu University Teaching Hospital (COOUTH), Awka Anambra State Data collected from November 2019 to April 2020 at Chukwuemeka Odimegwu Ojukwu Teaching Hospital was 122, male's to 75 and females 47. They made up the accessible population of this study. Also due to Covid 19 Pandemic which restricted movements in the state during the course of this research, only Chukwuemeka Odimegwu Ojukwu Teaching Hospital was used.

### **Population of Study**

The target population of the study includes patients / clients with Congestive Cardiac Failure from (58 – 65) years that were registered and accessing health care services in tertiary health institutions in Anambra State, Health workers which comprised with medical doctors, Nurses/Midwives, those that are working in the selected tertiary institution and patient relatives.

### **Sampling and Sampling Techniques**

The sample of the study is drawn from Chukwuemeka Odimegwu Ojukwu University Teaching Hospital Awka Anambra State, since there were restrictions in travelling and movement due to Covid 19 pandemic Chukwuemeka Odimegwu Ojukwu University Teaching Hospital was selected and it is also a research centre.

Total number of people sampled are 300, those patients whose data were collected = 122, nurses/midwives, medical doctors, patients relatives constituted 178 personnel's, they constituted the sample size.

### **Instrument for data Collection:**

The instrument for data collection of this study was questionnaire which was constructed in multiple choice form and interview methods. These methods are adopted in order to acquire the necessary information needed. The questionnaire administered contained 20 questions, personnel data of the respondents and 5 research questions. The researcher maintained a good relationship in order to get the information needed. Interviewers were also interviewed. The interview schedule is contained in the appendix.

### **Validity:**

The questionnaire was vetted by the supervisor who critically vetted items on the questionnaires and ratified their relevance and validity before the final copy was produced.

### Reliability Study of the Instrument:

In order to achieve and ascertain the reliability of the instrument used for this study, a pilot test was carried out using Test-re-test technique. The researcher achieved this by the administration of 20 questionnaires, 5 nurses and midwives, 5 patients relatives, 5 doctors and 5 patients selected. The respondents filled and returned their questionnaires with their responses dully completed.

### Ethical Consideration:

This was conducted in line with research ethics.

### Procedure for Data Collection:

The tool of study which is the questionnaire was distributed on face to face basis to all respondents, congestive cardiac failure, patients' relatives, Nurses and midwives, doctors and patients with congestive cardiac failure. Total number of 300 questionnaire were distributed to 300 respondents in 4 weeks based on every clinic day.

The distributions of the questionnaire were carried out with the help of the nurses/midwives. Interview was conducted to 12 CCF patients.

### Procedure for Data analysis

The responses from the questionnaire were collected and tabulated as they relate to each hypothesis. The data were analyzed and frequencies worked out in simple percentage. The Chi-Square ( $X^2$ ) statistics was used to test the hypothesis for the study using relevant questions that directly test the hypothesis.

## RESULTS

**Table 1 Showing the distribution of and collection of questionnaires**

SN	NAMES OF PERSON	DISTRIBUTED	COLLECTED	PERCENTAGE
1	CCF Patients	60	60	20%
2	CCF relatives	62	62	20.66%
3	Nurses/midwives	100	100	33.33%
	Doctors	78	78	26%
	Total	300	300	100%

Table 1 above clearly shows how the researcher distributed and collected questionnaires. The administered 300 questionnaire, 60 to congestive cardiac failure patients that are eligibele to write (educated) at the hospital representing (20%) Congestive Cardiac failure patient relatives/caregivers 62 questionnaires representing (20.66%) Nurses & Midwives working at COOHT Awka 100 questionnaires representing (33.33%) 78 questionnaires to medical doctors representing (26%). The total number of 300 questionnaires distributed were also returned. This number was considered valid and corresponds to the sample size of 300 used for the study.

## PRESENTATION AND ANALYSIS OF PERSONAL DATA

**Table 2 Age of the Respondents**

Age	Frequency	Percentage
26-35 years	20	6.6%
36-45 years	30	10%
46-55 years	74	31.33%
56-65 and above	156	52%
Total	300	100%

The above table 2 indicated that those of the ages 26-25 years were 20 (6.6%) 36-45years were 30 (10%) 46-55years were 94 (31.33%) and 56-65years and above were 156 (52%) respectively.

**Table 3. Sex Distribution of the respondents**

Sex	Frequency	Percentage
Male	98	32.66%
Female	202	67.33%
Total	300	100%

Table 3. above show that male respondents have a lower population of 98 occupying about (32.66%) of the total population. On the other hand, female respondents occupy the highest population of 202 with 67.33% of the total population.

**Table 4. Diet and activity regimens are related to compliance among patients with Congestive cardiac failure.**

Options	Frequency	Percentage
Strongly agree	200	66.66%
Agree	98	32.66%
Disagree	0	0
Undecided	2	0.7%
Total	300	100%

Table 4 clearly shows that 200 respondents strongly agree that diet and activity control regimens are related to compliance among patients with Congestive cardiac failure occupying (66.66%) 98 (32.66%) are in the agree category, no respondent disagree while 2 (0.7%) are in the undecided category.

**Table 5. level of compliance with diet and activity control regimens by patients are related to Congestive cardiac failure.**

Options	Frequency	Percentage
Strongly agree	185	61.67%
Agree	80	25.67%
Disagree	0	0%
Undecided	35	11.67%
Total	300	100%

Table 4.2.9 clearly indicated that 185 (61.67%) responded strongly agree that level of compliance with diet and activity control regimen by patients are related to congestive cardiac failure. 80 (25.67%) are the agree category. 35 (11.67%) are undecided while no respondents disagree.

## DISCUSSION

The results of this study suggested that patients with congestive heart failure are impacted by their food and exercise habits. This is consistent with the research of [20,21], which found that nutrition had a good impact on individuals with heart problems. Congestive heart failure is a prevalent condition, particularly in the elderly, that is becoming more and more significant for both patients and healthcare systems [23, 24, 25]. Congestive heart failure prevention, however, is a top priority due to the disease burden, and thus calls for organized programs of congestive heart disease prevention [26,27, 28].

Based on the research, the issues have been identified, including the degree of adherence to diet and activity control plans.

.. Based on these findings, it was determined that, despite having a high degree of education, the degree of noncompliance with diet and activity control regimes was very low in the case of moderate exercise.

## CONCLUSION

Patients with congestive heart failure are impacted by their degree of adherence to diet and exercise programs. Dietary practices and activity control programs are related in Anambra State patients with congestive heart failure.

## REFERENCES

1. Volpe M, Gallo G (2023). Obesity and cardiovascular disease: An executive document on pathophysiological and clinical links promoted by the Italian Society of Cardiovascular Prevention (SIPREC). *Front Cardiovasc Med.* 10:1136340.
2. Waleed, M. (2020). Prevalence of different type of valvular heart disease and other cardiac pathologies of the heart in high risk patients with suspicion of heart failure. A retrospective cohort studies. *Clinical Cardiology and Cardiovascular Interventions*, 3(9), 01–07.
3. Abassi Z, Khoury EE, Karram T, Aronson D. (2022) Edema formation in congestive heart failure and the underlying mechanisms. *Front Cardiovasc Med.* 9:933215.

4. Kim DY, Kim SH, Ryu KH (2019). Tachycardia induced Cardiomyopathy. *Korean Circ J.* 49(9):808-817. [PMC free article]
5. Kuznetsov, V., Pushkarev, G., & Yaroslavskaya, E. (2016). Psychosocial Risk Factors in Patients with Coronary Artery Disease and Congestive Heart Failure. *Global Heart*, 11(2), e23–e24.
6. Lind L, Ingelsson M, Sundstrom J, Ärnlöv J (2021). Impact of risk factors for major cardiovascular diseases: a comparison of life-time observational and Mendelian randomisation findings. *Open Heart.* 8(2): 7-9
7. Muchtar E, Blauwet LA, Gertz MA (2017). Restrictive Cardiomyopathy: Genetics, Pathogenesis, Clinical Manifestations, Diagnosis, and Therapy. *Circ Res.* 121(7):819-837.
8. Anakwue RC, Onwubere BJ, Anisiuba BC, Ikeh VO, Mbah A, Ike SO (2010). Congestive heart failure in subjects with thyrotoxicosis in a black community. *Vasc Health Risk Manag.* 6:473-7.
9. Rolnick, A., & Ehrenreich, Y. (2020). Can You Feel My Heart (Via Your Camera and Sensors)? The Role of the Body, Its Absence, and Its Measurement in Online Video Psychotherapy. *Biofeedback*, 48(1), 20–23.
10. Auld, J. P. (2019). Depressive Symptoms Drive Fatigue Following Congestion in Heart Failure. *Journal of Cardiac Failure*, 25(8), S130–S131.
11. Bommaraju, K., & Binkley, P. (2008). A One Unit Increase in Plasma BNP Is Associated with an Increased Odds of Hospital Admission in Patients with Congestive Heart Failure. *Journal of Cardiac Failure*, 14(6), S101–S102.
12. Doi, S., Tamura, A., Minagawa, T., Osaka, A., & Sata, M. (2020). Classification of physical activity in patients with heart failure categorized as New York Heart Association class I or II. *The Journal of Medical Investigation*, 67(1.2), 124–133.
13. Hauptman, P. J. (2016). In Heart Failure, You Can Embrace Your Inner Provocateur. *Journal of Cardiac Failure*, 22(9), 657–658.
14. Kemp CD, Conte JV (2012). The pathophysiology of heart failure. *Cardiovasc Pathol.* 21(5):365-71.
15. Ziaean B, Fonarow GC (2016). Epidemiology and aetiology of heart failure. *Nat Rev Cardiol.* 13(6):368-78.
16. Rezkalla SH, Kloner RA (2021). Viral myocarditis: 1917-2020: From the Cahill TJ, Ashrafian H, Watkins H (2013). Genetic cardiomyopathies causing heart failure. *Circ Res.* ;113(6):660-75.
17. Virk, I. S., & Tepper, D. (2006). Diurnal Blood Pressure Pattern and Risk of Congestive Heart Failure. *Congestive Heart Failure*, 12(6), 350–351.
18. Yamamoto, T., Ando, M., & Matsuzaki, M. (2011). Correction of Diastolic Dyssynchrony by Cardiac Resynchronization Therapy Improves Heart Failure Via Acceleration of Global Diastolic Filling. *Journal of Cardiac Failure*, 17(8), S48.
19. Namura, H. (2017). Adenosine Thallium-201 Myocardial Perfusion Scintigraphy in Acute Congestive Heart Failure with Preserved Left Ventricular Ejection Fraction. *Journal of Cardiac Failure*, 23(10), S42–S43.
20. Obokata M, Reddy YNV, Borlaug BA (2020). Diastolic Dysfunction and Heart Failure with Preserved Ejection Fraction: Understanding Mechanisms by Using Noninvasive Methods. *JACC Cardiovasc Imaging.* 13(1 Pt 2):245-257.
21. Prausmüller S, Arfsten H, Spinka G, Freitag C, Bartko PE, Goliasch G, Strunk G, Pavo N, Hülsmann M (2020). Plasma Nprilysin Displays No Relevant Association with Neurohumoral Activation in Chronic HFrEF. *J Am Heart Assoc.* 09(11): e015071
22. Butler, J. (2011). Congestive Heart Failure Special Issue on Advanced Heart Failure. *Congestive Heart Failure*, 17(4), 159–159.
23. DeFilippis EM, Beale A, Martyn T, Agarwal A, Elkayam U, Lam CSP, Hsich E (2022). Heart Failure Subtypes and Cardiomyopathies in Women. *Circ Res* 18;130(4):436-454
24. Reddy YNV, Melenovsky V, Redfield MM, Nishimura RA, Borlaug BA (2016). High-Output Heart Failure: A 15-Year Experience. *J Am Coll Cardiol.* ;68(5):473-482
25. Sakai, M. (2011). Efficacy of Caevodilol in Patients with Congestive Heart Failure Associated with Various Heart Diseases. *Journal of Cardiac Failure*, 17(9), S155–S156.
26. Ventura, H. O. (2009). Heart Failure and Cardiac Catheterization. *Congestive Heart Failure*, 15(6), 295–295.
27. Virk, I. S., & Ip, J. R. (2005). The Effect of Cardiac Resynchronization on Morbidity and Mortality in Heart Failure. *Congestive Heart Failure*, 11(4), 216–218.
28. Syamsuddin, F., Ayuba, A., & Nasir, N. I. (2022). The Effect of Cardiac Diet Counseling on Knowledge of Heart Diet in Congestive Heart Failure (CHF) Patients at Prof.Dr.H Aloe Saboe Hospital, Gorontalo City. *Journal of Community Health Provision*, 2(1), 35–41.

**CITATION**

Ekweozor UC, Nwoke BEB, Obasi KO, Chinedu E. PO, & Eberendu IF. (2024). Compliance With Diet and Activity Control Regimens by Congestive Cardiac Failure Patients in Public Facilities in Anambra State. In *Global Journal of Research in Dental Sciences* (Vol. 4, Number 3, pp. 8–13). <https://doi.org/10.5281/zenodo.11390850>