Scientific Research Publishing

World Journal of Cardiovascular Diseases, 2026, 16(4), 266-275
https://www.scirp.org/journal/wjcd
ISSN Online: 2164-5337
ISSN Print: 2164-5329

Study of Therapeutic Adherence in Heart Failure at the Cardiology Department of the Ignace Deen National Hospital, Conakry

Mamadou Bassirou Bah[1*], Abdoulaye Bah[1], Ibrahima Kalil Tounkara[1], Elhadj Yaya Balde[1], Mamadou Dian Bah[1], Alpha Kone[1,2], Ousmane Mamadama Camara[1], Mory Keita[1], Amadou Dioulde Doumbouya[1], Alpha Barry[1], Hassatou Diallo[1]

[1]Cardiology Department Ignace Deen National Hospital CHU Conakry, Conakry, Guinea
[2]Cardiology Department Hospital of the Sino-Guinean Friendship, Conakry, Guinea
Email: *bachirov6@gmail.com

How to cite this paper: Bah, M.B., Bah, A., Tounkara, I.K., Balde, E.Y., Bah, M.D., Kone, A., Camara, O.M., Keita, M., Doumbouya, A.D., Barry, A. and Diallo, H. (2026) Study of Therapeutic Adherence in Heart Failure at the Cardiology Department of the Ignace Deen National Hospital, Conakry. *World Journal of Cardiovascular Diseases*, **16**, 266-275.
https://doi.org/10.4236/wjcd.2026.164027

Received: January 25, 2026
Accepted: April 21, 2026
Published: April 24, 2026

Abstract

Introduction: Heart failure (HF) is a major public health problem due to its increasing prevalence and impact on morbidity and mortality. Adherence to treatment during heart failure is an essential determinant of treatment effectiveness, but it often remains insufficient. The objective of this study was to evaluate the therapeutic adherence of patients with heart failure and to identify factors associated with the cardiology department of the National Ignace Deen CHU of Conakry. **Material and Methods:** We conducted a cross-sectional study involving 135 patients hospitalized for IC in the cardiology department of the Ignace Deen National Hospital from September 1, 2024, to June 30, 2025. The study population consisted of patients treated and followed for heart failure for at least 3 months. The variables studied were based on sociodemographic data, possession of health insurance and level of adherence. Treatment adherence was measured using the Girerd scale. **Results:** Out of 528 patients hospitalized in the department during the study period, 135 patients had heart failure, representing a hospital prevalence of 25.5%. The average age of our patients was 57.6 17 years with a male predominance (59.3%). The majority of patients resided in urban areas (80%). More than half of the patients (66.7%) had no health insurance and 92 (68.14%) had a low socioeconomic level. According to our study, 51.1% of patients had a problem with adherence and the main reason for this non-compliance was medication failure (55.5%) and having a lot of medications to take (78.5%). The main factors associated with poor adherence were lack of social coverage ($p = 0.02$) and gender ($p = 0.02$). **Conclusion:** Heart failure remains a major public health problem. Adherence appears to be a central element in improving patient

prognosis.

Keywords

Heart Failure, Therapeutic Adherence

1. Introduction

Heart failure (HF) is a frequent pathology, with significant morbidity and mortality, for which management is costly. In the West, it is by far the most common cardiovascular disease, the most expensive and with a reserved prognosis [1]. More than 400,000 new cases of HF are diagnosed each year in the United States and two to three million people have symptomatic HF [2]. In Africa, heart failure is considered to be the most common cause of hospitalization among subjects suspected of having a cardiac pathology [1]. According to the World Health Organization (WHO), medication adherence is defined as the good agreement between the doctor's prescriptions and recommendations and the patient's behavior [3]. Adherence to treatment for chronic diseases is a public health issue. There is a growing trend in the rate of poor adherence to treatment worldwide. It is 50%, all conditions combined with an average of 36% for heart failure [4]. In Guinea, Barry IS *et al.*, in 2019, reported a hospital frequency of 36.5% of heart failure in a study on mortality related to heart failure in the Guinean cardiology department at the Ignace Deen University Hospital [5]. Moreover, no study has yet been conducted on the therapeutic adherence associated with heart failure. Our objective through this study was to study the adherence to therapy in patients with heart failure and identify the factors favoring poor adherence.

2. Methodology

It was a cross-sectional study with an analytical and prospective aim, conducted in the cardiology department of the UHC Ignace Deen in Conakry (September 2024-June 2025). Were included, 135 patients hospitalized for HF, selected from a total population of 528 patients hospitalized during the study period. The study population consisted of patients hospitalized for heart failure and who have been on pharmacological treatment for at least 3 months with informed consent and strict confidentiality. We have conducted an exhaustive recruitment of all hospitalized patients meeting the criteria of ESC for heart failure (HF). Were included the patients major, treated for at least 3 months. Compliance was measured by the Girerd scale (self-question allowing to estimate the level of compliance) which is valid for most studies. Thus, six short questions are asked to the patients and their entourage, a yes answer is rated by 1 point and a no answer by 0 point, and in the end three groups of patients have been defined (score 0: good; 1 - 2: minimal; 3: bad). The reliability of the data was guaranteed by an independent double entry on SPSS and the database underwent a rigorous cleaning (data cleaning) to detect outliers

and ensure internal consistency of responses. The variables studied were based on socio-demographic data, possession of health insurance and the level of adherence. Thus social coverage was defined as any person affiliated to a social security scheme or public insurance covering medical and hospital care, the socio-economic level is any social and economic position of the patient, being able to influence access to care and adherence, in our study it was measured based on the IGMW (Guaranteed Inter-professional Minimum Wage) and divided into three categories:

- Low socioeconomic level: any patient with a monthly income below 550,000 Guinean francs (GNF) which is lower than the IGMW;
- Average socioeconomic level: any patient with a monthly income between 550,000 and 1,650,000 GNF, or 1 to 3 times the SMIG;
- High socioeconomic level: any patient with a monthly income greater than or equal to 1,650,000 GNF is greater than 3 times the IGMW;
- We studied sociodemographic, clinical and therapeutic data. The statistical processing was carried out using SPSS v21 software. The approach was articulated in three phases;
- Descriptive and bivariate analysis: qualitative variables were expressed in numbers and percentages, and quantitative variables in means with standard deviation. The associations were tested by the Khi-two Pearson test (or Fisher exact test) for qualitative variables and the student test for quantitative variables. A significance threshold of $p < 0.20\%$ in bivariate was chosen for the inclusion of variables in the multivariate model;
- Multivariate analysis: in order to identify independent risk factors and control for confounders, a binary logistic regression was constructed. We used a descending step-by-step procedure (Wald method), allowing to gradually eliminate non-significant variables. The results were expressed as adjusted odds ratios (ORa) with their 95% confidence intervals (95% HF). the model: the absence of multi-collinearity between the independent variables was verified by calculating the variance inflation factor (VIF).

▪ The adequacy (the "good fit") of the model to the observed data was tested by the Hosmer-Lemeshow test (a value of $p > 0.05\%$ indicating a statistically robust model).

The discriminating performance (ability of the model to properly classify observant and non-observant patients) was validated by the ROC curve (Receiver Operating Characteristic) with the calculation of the Area Under the Curve (AUC).

Limits of the study:

This study presents some limitations:

Self-reporting bias: the Girerd scale can induce social desirability or memory bias, potentially underestimating non-adherence.

Recruitment bias: the monocentric nature in hospital settings limits the generalization of results at the national level.

Inference: cross-cutting design does not allow for temporal causality.

Ethical and administrative considerations:

Ethic: the protocol has been approved by the local ethics committee of the CHU Ignace Deen. Informed and written consent was obtained from each participant. Anonymity and confidentiality were strictly preserved.

Conflicts of interest and Financing: The authors state that they have no conflict of interest.

Contributions: All authors contributed to the design, data collection, statistical analysis and validation of the final manuscript.

3. Result

Out of 528 patients hospitalized in the department during the study period, 135 patients had heart failure, representing a hospital prevalence of 25.5%. The average age of patients was 57.6 17 years with extremes from 14 to 89 years. The most representative age range was between 60 and 79 years of age, including 63 cases (46.7%). The predominance of the male gender over the female was notable with 59.3% and 40.7% respectively, representing a sex ratio of H/F = 1.45. In our sample, the overall compliance rate obtained was distributed as follows: 51.1% poor compliance, 45.9% minimal compliance, and 3.0% good compliance. According to our study, 66.7% or 90 patients had no social coverage compared to 33.3% or 45 patients who had social coverage. The socio-economic level of our patients had positively affected medication adherence, indeed we had obtained the highest rate of poor adherence (92 cases) in categories with a low socioeconomic level. The main decompensation factors in our study were diet deviation (43.7%) and treatment discontinuation (42.2%). Paraclinically, atrial fibrillation was the most common electrocardiographic anomaly and on transthoracic echocardiography the main anomalies were represented by the dilation of the heart chambers (45.2%), left ventricular systolic dysfunction (34.1%) and the increase in filling pressures (54.8%). Therapeutically, loop diuretics (100%) and beta-blockers (80.7%) were the most prescribed medications. Having a lot of medication to take (78.5%) and drug failure (55.5%) were the two main reasons for non-adherence found in our study. The understanding of prescribed medications and the ability to identify symptoms were the main positive points with 28.28% and 31.85%, respectively. The analysis of the correlation between the studied factors and medication adherence shows in our study a statistically significant link for gender with a P value at 0.02 and social coverage with a p value of 0.02. Moreover, we did not find a significant link between the studied factors and therapeutic adherence with profession (p = 0.08), residence (0.08) and marital status (p = 0.06).

Table 1. Distribution of the 135 patients according to medication adherence.

Score de Girerd	Effectif	Pourcentage
Bonne observance	4	3.0
Mauvaise observance	69	51.1
Observance Minime	62	45.9
Total	135	100

Table 2. Distribution of the 135 patients according to sociodemographic variables.

Socio-demographic variables	numbers	Percentage
Gender		
Female	55	40.7
Male	80	59.3
Profession		
Trader	14	10.4
Student	7	5.2
Civil servant	9	6.7
Seller	4	3.0
Housewife	37	27.4
Unemployed	12	8.9
Mansion		
Rural	27	20
Urbain	108	80
Level of education		
Unschooled	77	57.0
Primary	17	12.6
Secondary	24	17.8
Higher education	17	12.6
Marital status		
Single	10	7.4
Divorced	2	1.5
Married	100	74.1
Widowed	23	17
Social insurance		
Insured	45	33.3
Uninsured	90	66.7
Socioeconomic level		
Average	38	28.1
Elevated	5	3.7
Low	92	68.1

Table 3. Distribution of adherence according to socioeconomic level.

Socioeconomic level	Girerd's score			Sum
	Good compliance	Poor compliance	Minimal Observance	
Average	1	31	6	38
Elevated	0	3	2	5
Weak	3	35	54	92
Sum	4	69	62	135

p value = 0.08.

Table 4. Distribution of the 135 patients according to the decompensation factors.

Decompensation factors	Number	Percentage
Hypertensive crisis	12	8.9
Ischemic flare	16	11.9
Dysrhythmia	29	21.5
Conduction disorder	02	1.5
Infectious context	19	14.1
Diet slip	59	43.7
Iatrogeny	01	0.7
Therapeutic break	57	42.2

Table 5. Evaluation of therapeutic education according to the ESC.

Evaluation of therapeutic education according to the ESC	Number	Percentage
Understanding of prescribed medications	39	28.28
Understanding the causes of HF	10	7.40
Ability to identify the symptoms	43	31.85
Frequency of forgetfulness of Taking medication	8	5.92
Frequency of medical consultations in case of symptoms	11	8.14
compliance with the diet	24	17.77

Table 6. Distribution of adherence by sex.

Gender	Girerd's score			Sum
	Proper Observance	Poor treatment adherence	Minimal Observance	
Female	1 (0.01)	31 (0.56)	23 (0.41)	55
Male	3 (0.03)	38 (0.47)	39 (0.48)	80
Sum	4	69	62	135

p value = 0.02.

Table 7. Distribution of adherence according to the profession.

Profession	Girerd's score			Sum
	Good compliance	Minimal Observance	Minimal Observance	
Trader	0	5 (0.35)	9 (0.64)	14
Student	0	4 (0.57)	3 (0.42)	7
Civil servant	0	4 (0.44)	5 (0.55)	9
Seller	0	1 (0.25)	3 (0.75)	4
Housewife	0	24 (0.64)	13 (0.35)	37
Worker	3 (0.05)	25 (0.48)	24 (0.46)	52
Unemployed	1 (0.08)	6 (0.5)	5 (0.41)	12
Sum	4	69	62	135

p value = 0.08.

4. Discussion

In our study, the overall rate of adherence obtained was distributed as follows: 51.1% poor adherence, 45.9% minimal adherence, and 3.0% good adherence (Table 1). This result reflects a relatively high proportion of non-observing patients that deserves to be analyzed in the light of the literature and the specificities of our study population. The rate of poor adherence at 5.1% found in our study is higher than that of CN Nganou-Gnindjio *et al.* in Cameroon, which reported 33.7% of poor adherence [1] and that of Ncho-Mottoh *et al.* in Côte d'Ivoire who achieved a poor adherence to medication treatment of 39.7% [6]. On the other hand, our result is close to that of Yayhed K *et al.* in Lomé who had found a poor adherence to medication of 74.7% [2]. This result is explained by the lack of social coverage and the lack of therapeutic education among our patients. The average age in our study was 57.6 17 years with extremes of 14 to 89 years. The most representative age range was that between 60 and 79 years old, including 63 cases, or 46.7%. Age appeared as a factor déterminant dans notre étude. Our results are consistent with those of Sonfo Boubacar and all in Mali, who reported that the age group of 60 and 79 was most affected by poor adherence [3]. In Cameroon CN Nganou-Gnindjio *et al.* had found that the age group 60 to 80 years old had the highest rate of poor compliance [1]. Our result is related to that of the literature which considers age as a factor in the occurrence of poor adherence to treatment. Indeed several causes can explain this: elderly people are subject to polymedication (the more complex the treatment, the greater the risk of error or forgetfulness), psychosocial factors due to lack of financial support. The male gender predominated in our study, that is to say 80 men for 55 women with a respective percentage of 59.3% and 40.7% or a sex ratio of H/F = 1.45 (Table 2). Our result is superposable to that of NA Randriamihangy in Madagascar who in their study report that 60% of non-observing patients were men [7]. On the other hand, CN Nganou-Gnindjio *et al.* had shown in their study a female predominance at 55.4%. This difference could be explained by the fact that the influence of gender on adherence may depend on the sociocultural and economic context. In our society, men are at the forefront of family expenses, which pushes some men to minimize their symptoms and neglect treatments. Housewives were the most affected socio-professional category, at 27.4%. In our series, 57% of our included patients were not enrolled. NA Randriamihangy in Madagascar reports a predominance of patients with secondary education [7]. The high frequency of non-compliance with treatment among housewives and the illiterate population is justified by the fact that they are part of the most disadvantaged socio-professional layers of our society with a low and inconsistent economic level. Indeed, a moderate or low standard of living does not allow for the proper treatment of IC which is a chronic pathology with a relatively long duration of treatment classified as long-term conditions. In our study 66.7% or 90 patients had no social coverage compared to 33.3% or 45 patients who had social coverage (Table 2). This result is identical to that of Sonfo Boubacar *et al.* in Mali who had reported 70 cases

(61.9%) of uninsured patients and 43 cases, or 38.1% of patients insured by an NGO [3]. CN Nganou-Gnindjio *et al.* in Cameroon had found a proportion of its insured population at 4.6% vs 95.4% of uninsured patients [1]. The predominance of patients without health insurance in our study, as observed in several studies in Africa, is mainly explained by economic factors (the high cost of medications in the management of HF), social (the poverty of the population, the absence of family support) and structural (by the lack of state subsidies). The socio-economic level of our patients had positively affected medication adherence, indeed we had obtained the highest rate of poor adherence (92 cases) in categories with a low socioeconomic level (**Table 3**). This result is identical to that of Sonfo Boubacar *et al.* in Mali who reported that 64 (56.6%) of the patients had no income [3]. The lack of financial resources is a factor in poor adherence to treatment, especially in our population characterized by poverty, lack of health insurance and psychosocial support. In terms of cardiovascular risk factor, our results are consistent with data from the literature that reported that high blood pressure is a major risk factor for cardiovascular disease. The hypertension represented 65.2% in our study population. This result is identical to that of CN Nganou-Gnindjio *et al.* in Cameroon, who reported proportions of 59.4% of hypertension [1] in their study, and that of Sonfo Boubacar *et al.* in Mali, who had found 72.6% of hypertensive patients [3]. The main decompensation factors in our study were diet deviation (43.7%) followed by treatment discontinuation (42.2%) (**Table 4**). In the study by Nganou-Gnindjio *et al.*, the majority of patients were stable, 73.1% compared to 26.9% of decompensated patients, with atrial fibrillation at 31.9% as the main decompensation factor followed by poor treatment follow-up reported in 26.7% [1]. These results are explained by the absence of a therapeutic education unit in our service, the relatively low socioeconomic level of most of our patients who could not cope as well with the renewal of prescriptions for the continuity of heart failure care. Having a lot of medication to take (78.5%) and the lack of medication (55.5%) were the main reasons for non-adherence to treatment found in our series. In the study by Sonfo Boubacar, the main reason for poor adherence was taking treatment with a delay of 52.2%, followed by drug withdrawal at 48.7%. Our result is explained by the fact that most of our patients were polymedicated, lacking therapeutic education and affected by poverty. Given the importance of therapeutic education in the management of chronic pathologies such as heart failure, we tried to study the impact of therapeutic education in our study population, for this purpose we used the ESC questionnaire. The understanding of prescribed medications and the ability to identify symptoms were the main positive points respectively 28.28% and 31.85% (**Table 5**). This result denotes the absence of the therapeutic education program in our patients. The analysis of the correlation between the studied factors and medication adherence shows in our study a statistically significant link for gender with a p value at 0.02 and social coverage with a p value of 0.02 (**Table 6**). Moreover, we did not find a significant link between the studied factors and therapeutic adherence with profession ($p = 0.08$),

residence (0.08) and marital status (p = 0.06) (Table 7). Our results are different from those found by Boubacar Sonfo *et al.* in Mali who did not find a statistically significant relationship between adherence and social coverage (p = 0.267) [3]. On the other hand, this observation was made by the Togolese study of Yayhed K *et al.*, which found a significant relationship between poor adherence and social coverage (p < 0.0001) [2]. The absence of social coverage or health insurance leads to non-adherence to treatment by reducing the doses of prescribed medications, premature discontinuation of treatment, or self-medication, especially in chronic diseases such as in our case with long-term treatment. This results in a worsening of the disease, an increase in hospitalizations and complications that can worsen the prognosis of patients.

5. Conclusion

Heart failure remains a major public health problem. Adherence appears to be a central element in improving patient prognosis. Our study highlights a high rate of poor adherence, mainly related to socio-economic constraints and polypharmacy. It seems essential to strengthen therapeutic education programmes, develop appropriate support systems and involve patients and their families in the management of the disease.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

References

[1] Nganou-Gnindjio, C., Hamadou, B., Ananfack, G., Djuemou Pangang, T. and Menanga, A. (2021) Evaluation of Therapeutic Adherence in Patients Followed for Chronic Heart Failure in Cameroon's Urban Areas: An Observational Study. *Health Sciences and Disease*, **22**, 40-45.

[2] Yayehd, K., Damorou, F., N'cho Mottoh, M.P., Tchérou, T., Johnson, A., Pessinaba, S., *et al.* (2013) Observance thérapeutique de l'insuffisant cardiaque à Lomé. *Annales de Cardiologie et d'Angéiologie*, **62**, 22-27. https://doi.org/10.1016/j.ancard.2012.03.005

[3] Sy, D. (2024) Study of Therapeutic Adherence in Patients Living with Heart Failure Followed on an Outpatient Basis at the Cardiology Department of the Ziguinchor Peace Hospital. *UFR Sciences de Santé*, **2078**, Article No. 1234.

[4] Sonfo, B., Coulibaly, C., Sanogo, S., Sako, M., Thiam, C., Camara, Y., *et al.* (2021) Epidemiological, Etiological and Therapeutic Aspects of Heart Failure in the Medical Service, Somine Dolo Hospital of Mopti. *Journal de la Recherche Scientifique de l'Université De Lomé*, **22**, 723-730.

[5] Sory, B.I., Yaya, B.E., Abdoulaye, C., Morlaye, S., Kokoulo, K., Aly, S., *et al.* (2019) Mortality Related to Heart Failure in a Guinean Cardiological Environment. *Pan African Medical Journal*, **1**, Article No. 59. https://www.clinical-medicine.panafrican-med-journal.com/content/article/1/59/full/

[6] N'Cho-Mottoh, M.P.B., Boka, B., Yayehd, K., Iklo, C., Traoré, F., Bamba-Kamagate,

D., *et al.* (2015) Assessment of Treatment Adherence among Black Africans with Heart Failure. *Médecine et Santé Tropicales*, **25**, 373-376. https://doi.org/10.1684/mst.2015.0516

[7] Randriamihangy, N.A., Ramiandrisoa, L.R., Miandrisoa, R.M., Tsitara, B.M., Haribenja Rasoavololona, D., Rakotoarisoa, A.H.N., *et al.* (2020) Adherence to Drug Treatment among Patients with Chronic Heart Failure in the University Hospitals of Mahajanga (Madagascar). *JACCR Africa*, **4**, 128-134. https://jaccrafrica.com/gallery/na%20randriamihangy%20et%20al.%20%20jaccr%20africa%20010220.pdf