

# Burden of Mental Depression in Patients with Chronic Heart Failure: A Cross-Sectional Study in Cameroon's Reference Hospitals



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## Abstract

**Background:** Chronic Heart Failure (CHF) is a global public health problem. It is associated with psychological problems that have a great impact on Quality of Life. Amongst the psychological disorders associated with CHF, mental depression is a major one. There are few studies done in Sub-Saharan Africa in general and specifically in Cameroon. The knowledge of the epidemiology of depression in Cameroon will help policymakers to reduce the burden of CHF in this part of the world. The aim of this pilot study was to determine the prevalence of mental depression in patients with Chronic Heart Failure followed in three reference hospitals of Cameroon.

**Methodology:** We carried out a cross-sectional study over a period of 04 months, from January to May 2017. The patients were recruited from the cardiology departments of three reference hospitals of Cameroon: Yaoundé Central Hospital (YCH), General Hospital of Yaoundé (GHY) and Yaoundé University Teaching Hospital (YUTH). We included all patients aged 18 years and above followed for CHF and consenting to participate in the study. Patients with other chronic conditions (chronic kidney disease, cancer, schizophrenia) were excluded. Evaluation and detection of mental depression was done by the Patient Health Questionnaire 9 (PHQ-9).

**Results:** A total of 119 patients were recruited. The mean age was  $66 \pm 13$  years. More than 2/3 (70.6%) of the patients were unemployed. The majority of patients (83.2%) had low monthly income (<100 000 FCFA). Stage II of heart failure according to New York Heart Association (NYHA) was the most represented (50%). The prevalence of depression was 35.3% (n=42) with the respective frequency of 26.1%, 8.4%, 0.8% for mild, moderate, moderately severe.

**Conclusion:** The prevalence of mental depression is high in patients with Chronic Heart Failure in Cameroon. The clinician should be aware of that in order to improve quality of life of these patients.

**Keywords:** Mental depression; Chronic heart failure; Cameroon

**Abbreviations:** CHF: Chronic Heart Failure; GHY: General Hospital of Yaoundé; HF: Heart Failure; IQR: Interquartile Range; LVEF: Left Ventricular Ejection Fraction; MD: Mental Depression; NYHA: New York Heart Association; PHQ-9: Patient Health Questionnaire 9; QOL: Quality of Life; SPSS: Statistical Package for Social Sciences; WHO: World Health Organization; YUTH: Yaoundé University Teaching Hospital

## Background

Chronic Heart Failure (CHF) is a major cause of death worldwide [1]. In the survivors it is associated with various complications including physical, social and psychological aspects that affected quality of life [2]. The burden in Sub-Saharan

Africa is also high; in fact, Heart Failure (HF) accounts for over 30% of hospital admission in specialized cardiovascular units and 3% to 7% in general internal medicine [3]. Amongst the psychological complications, Mental Depression (MD) is well studied abroad. It is defined as a disorder of a mood characterized by reduction of

pleasure and desire in the daily activities due to disequilibrium of a stable psychological condition for at least 2 weeks [4]. In United States, Gotlieb et al. [5], Friedmann et al. [6], Rohyans et al. [7] found the respective prevalence of 48%, 36%, and 28%. In Europe the reported prevalence was approximately the same with a range of 28.6 to 30% [8,9]. In Asia this prevalence was also high with a range of 24% to 68% depending of specific groups of patients and site of the recruitment [10]. Despite the high burden of the disease and its known psychological impact, there are few studies done in Sub-Sahara Africa. We therefore conducted this pilot work in order to determine the prevalence of mental depression in patients with Chronic Heath Failure followed in three reference hospitals.

## Material and Methods

### Study design, setting and participants

We carried out a cross-sectional study over a period of 04 months, from January to May 2017. The patients were recruited from the cardiology departments of three references Hospitals of Cameroon: Yaoundé Central Hospital (YCH), General Hospital of Yaoundé (GHY) and Yaoundé University Teaching Hospital (YUTH). We included all patients aged 18 years and above followed for CHF and consenting to participate in the study. Patients with other chronic conditions (chronic kidney disease, cancer, schizophrenia) and those with incomplete file were excluded. Sample size calculation was done by Cochran formula [11]

$$N = \frac{Z^2 \times P(1-p)}{d^2} = 85 \text{ patients}$$

N: minimal sample size

Z: 1.96 for an alpha error of 5%

P: 0.3 (Prevalence of heart failure in Cameroon found by Kingue et al. [12].

D: precision set as 10%

### Data collection

Using a structured pilot-tested questionnaire, we briefly interviewed all attended patients in external consultation unit of

**Table 1:** Demographical and socio-economical characteristics of participants.

Variables		Effective (n=119)	Percentage (%)
Sex	Female	71	59.7
	Male	48	40.3
Matrimonial status	Married	59	49.6
	Non-Married	60	50.4
Level of education	illetterate	28	23.5
	Primary	46	38.7
	Secondary	32	26.9
	University	13	10.9
Occupation	Employed	67	56.3
	Unemployed	52	43.7

cardiology department. We collected following socio-demographic data: sex, age, matrimonial status, level of education, ethnic origin, religion, profession, monthly income, and monthly cost of health care and existence of medical insurance. Clinical data concerned: Cardiovascular risk factors such as history of alcohol or tobacco consumption, sedentary lifestyle, obesity defined as a body mass index  $\geq 30$  kg/m<sup>2</sup>, dyslipidemia, hereditary exposure, duration and etiologies of chronic health failure, weight, height, body mass index. Severity of heart failure was assessed using the functional class of New York Heart Association (NYHA). The Left Ventricular Ejection Fraction (LVEF) was determining by transthoracic cardiac ultrasonography by using either Teicholz or Simplify Simpson's formula. Therapeutic data concerned current drugs for heart failure, side effect and compliance. The adherence to treatment was evaluated by Gired questionnaire [13]. Evaluation and detection of mental depression was done by the Patient Health Questionnaire 9 (PHQ-9). The PHQ-9 classified patients into 5 categories according to their marks between the value 0 to 27: None depression (0 to 4) mild (5 to 9), moderate (10 to 14), moderately severe (15 to 19) and severe (20 to 27) [14].

### Statistical analyses

Data were analysed using SPSS version 23.0. Means (standard deviations), medians, interquartile range (IQR) were used to summarize continuous variables, while frequencies and proportions were calculated for categorical variables.

## Results

### Characteristics of the study participants

A total of 119 patients were recruited with female predominance (n=68; 58%). The mean age was 66 ± 13 years with range of 20 to 94 years. More than 2/3 (70.6%) of the patients were unemployed. The majority of patients (83.2%) had low monthly income (<100 000 FCFA) (Table 1). Hypertension was the major co-morbidity and Stage II of heart failure according to New York Heart Association (NYHA) was the most represented (50%). There were approximately the same proportions of all type of heart failure according to the left ventricular ejection fraction (Table 2).

Monthly salary	≥100 000	20	16.8
	<100 000	99	83.2

**Table 2:** Clinical and paraclinical characteristics of population.

Variables		Effective (n=119)	Percentage (%)
Co-morbid conditions	Hypertension	78	65.5
	Diabetes	10	8.4
	Obesity	21	17.6
	Dyslipidemia	10	8.4
	Cachexia	3	2.5
	Tobacco consumption	3	2.5
	Alcohol abuse	21	17.6
Etiologies of CHF	Hypertensive heart disease	58	48.7
	Myocardiopathy	30	25.2
	Valvulopathy	22	18.5
	Ischemic heart disease	11	9.2
	Others	4	2.4
NYHA class	I	40	33.6
	II	60	50.4
	III	17	14.3
	IV	2	1.7
LVEF	Preserved	42	35.3
	Mid-range	37	31.1
	Altered	40	33.6
Adherence to treatment	Nonadherence	14	11.8
	Low adherence	62	56
	Good adherence	43	36

**Table 3:** Severity of mental depression in patient with Chronic Heart failure.

Variables	Number (n=42)	Percentage (%)
Minor	31	26.1
Moderate	10	8.4
Moderate to Severe	1	0.8
Severe	0	0

### Prevalence of depression

The prevalence of depression was 35.3% with predominance of the mild type and absence of severe form of depression (Table 3).

### Discussion

Mental depression is a major syndrome found in various chronic illnesses [15]. This psychological disorder is frequently associated with poor quality of life in patient with Chronic Heart Failure [16]. The prevalence of depression in CHF has been study in developed countries and many strategies have been put in place in order to reduce its burden [16-22]. In Low income countries little is known about the distribution of this pathology amongst

patients with HF. One third of our patient were concerned with various degree of severity this was similar to the previous studies abroad; but it is important to precise that severe depression was rare. The scarcity of severe form of mental depression is probable due to the fact that patients were recruited in external consultation and were more in stable conditions compare to reported literature. Hwang et al. [22] reported a prevalence of mental depression of 68% for hospitalized patients with CHF compare to 24% for patients in external consultation [22]. This illustrates the fact that hospitalized patients are more exposed to depression, probably because of many factors like: non controlled disease cost of health care or environmental influence itself. Since these patients already have mild to moderate form of depression

in stable condition, they should require a lot of attention when they are hospitalized. Considering the high number of patients hospitalized in Cameroon for HF [12], the prevalence of mental depression could be higher than that predicted by our results.

## Conclusion

Mental depression is highly prevalent amongst patients with Chronic Heart Failure in Cameroon. The clinicians should pay attention of that in order to reduce morbidity and mortality of HF in this context.

## Declarations

**Ethics approval and consent to participate:** Ethical approval was obtained from the Institutional Review Board of the Faculty of Medicine and Biomedical Sciences, University of Yaoundé I. Also, administrative authorization was obtained from the Directors of the General Hospital of Yaoundé, Central Hospital of Yaoundé and Yaoundé University Teaching Center prior to the start of the study. Written informed consent was obtained from all study participants who part took in this study.

**Availability of data and materials:** The datasets used and analyzed during the current study are available from the corresponding author on reasonable request.

## Competing Interest

The authors declare that they have no competing interests.

## Authors' Contribution

JB, TDKN, JPOK, and LMK, SK: study conception and design, data collection and analysis, interpretation of results. Manuscript writing and critical revision: JB, MNT. All the authors read and approved the final version of the manuscript.

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