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# Prevalence and Risk Factors of Sexual Dysfunction in Patients with Chronic Heart Failure in Yaoundé, Cameroon

Jerome Boombhi<sup>1,2,\*</sup>, Berthe Eteki<sup>1</sup>, Ba Hamadou<sup>1,3</sup>, Mazou Ngou Temgoua<sup>1</sup>, Donald Tchampi<sup>1</sup>, Alain Menanga<sup>1,2</sup>, Samuel Kingue<sup>1,2</sup>

<sup>1</sup>Department of Internal Medicine and Specialties, Faculty of Medicine and Biomedical Sciences, University of Yaoundé I, Yaoundé, Cameroon

<sup>2</sup>Cardiology Unit, General Hospital of Yaoundé, Yaoundé, Cameroon

<sup>3</sup>Cardiology Unit, Central Hospital of Yaoundé, Yaoundé, Cameroon

## Email address:

boombhijerome@yahoo.fr (J. Boombhi), bertheeteki@yahoo.com (B. Eteki), drhamadouba@yahoo.fr (Ba Hamadou), neurotemgoua@yahoo.fr (M. N. Temgoua), tn.donald@yahoo.fr (D. Tchampi), amenanga@yahoo.fr (A. Menanga), samuel\_kingue@yahoo.fr (S. Kingue)

\*Corresponding author

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**Abstract:** Heart failure is a major public health problem in sub-Saharan Africa, associated with high morbidity and mortality. Sexual dysfunction contributes a lot to the burden of the disease. This complication is linked to the side effects of drugs, physical and psychological factors, and the coexistence of shared risk factors between heart failure and sexual dysfunction. Although patients with heart failure frequently report sexual disorders, few data are available in our context. This research seeks to determine the prevalence and risk factors of sexual dysfunction in patients with chronic heart failure in three reference hospitals of Cameroon. We carried out an analytical cross-sectional study over a period of four months (January to April 2018). All consenting patient with chronic heart failure aged 18 years and above were selected. Baseline socio-demographical and clinical characteristics were collected. The assessment of sexual function was made using a self-administered questionnaire. Data analysis was done using the software IBM SPSS 23.0; the level of statistical significance was set at  $p < 5\%$ . A total of 170 patients with chronic heart failure were recruited, the mean age was  $60.46 \pm 10.66$  years old, with a female predominance (sex-ratio=0.78). The prevalence of sexual dysfunction was 57.7%. The main sexual disorders were: Sexual desire disorders (21.65%), vaginal lubrication disorders (20%) in women, erectile disorders in men (17.3%), orgasmic dysfunction (7.22%), arousal disorders (4.44%) and sexual satisfaction disorders (1%). The independent risks factors of sexual dysfunction were: Female gender ( $p=0.008$ ), age $>60$  years ( $p=0.001$ ), hypertension ( $p=0.0017$ ), use of beta blockers ( $p=0.0081$ ) and fear of heart attack ( $p<0,001$ ). Sexual dysfunction is common in patients with chronic heart failure in our context. Indeed, it affects more than half of our study population (57.7%) and is influenced by many factors.

**Keywords:** Sexual Dysfunction, Chronic Heart Failure, Sub-Saharan Africa

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## 1. Introduction

Cardiovascular diseases (CVDs) are leading causes of death worldwide [1]. Heart failure (HF) is part of CVDs and it affects at least 26 million peoples worldwide [2]. It represents 37.7% cases of in-hospital admissions in Africa setting [3] and 33.3% in Cameroon [4].

The spectrum of heart failure complications is very large; the most frequent are rhythm disorders, renal failure, venous thromboembolism, and stroke. As various chronic diseases, HF is also associated with sexual dysfunction (SD) [5]. This effect on sexual function is mostly explained by side's effects of drugs, physical and psychological factors [6, 7]. Another explanation is the fact that heart failure and sexual dysfunction

share some similar risk factors like hypertension, diabetes and obesity [8–10]. The American Health Association (AHA) estimates that 60 to 87% of all patients with heart failure suffer from SD including a marked decrease in sexual interest and activity, with one quarter reporting cessation of sexual activity altogether. This condition contributes significantly to the alteration of the quality of life of these patients [11]. Also, this psychosocial aspect of patient's management is sometime neglected in our practice contributing therefore to the increase burden of the disease [12]. Although patients with heart failure frequently report sexual disorders, few data are available in our context. The purpose of this research was to determine the prevalence and risk factors of sexual dysfunction in Cameroonian patients with chronic heart failure.

## 2. Material and Methods

### 2.1. Study Design, Setting and Participants

This was a cross-sectional, analytical study carried out in three reference hospitals of Cameroon: General Hospital of Yaoundé (GHY), Central Hospital of Yaoundé (CHY) and Yaoundé University Teaching Center (YUTC) from January to April 2018. We consecutively enrolled all consenting patients with chronic heart failure aged above 18 years independently of their functional class which was evaluated by the New York Heart Association (NYHA) classification. We have excluded all participants with incomplete file.

### 2.2. Data Collection

Using a structured pilot-tested questionnaire, we interviewed all patients in external consultation unit of cardiology department who matched our inclusion criteria. We collected following socio-demographic data: age, sex, profession, marital status, education level, religion, ethnic origin. We also collected data on heart failure like: duration, type, functional class of NYHA, etiology, and Left ventricular ejection fraction (LVEF) of less than 3 months. For patient who did not have recent LVEF we realized a new ultrasonography to precise this data using value of Teicholz or Simplify Simpson's formula. The following cardiovascular risk factors were also assessed: Hypertension, current and past tobacco consumption, regular alcohol consumption, diabetes, dyslipidemia, obesity defined as a body mass index  $\geq 30$  kg/m<sup>2</sup>, physical inactivity and stress assessed by Cohen Scale. Questions on sexuality were based on psychometrical analysis of Mozack and the diagnosis of sexual dysfunction based on Arizona Sexual Experience Scale (ASEX). ASEX is a total of 5 questions ranging from 1 to 6 points, this scale evaluates: sexual desire, excitation, orgasm, satisfaction and erection for men or vaginal arousal for women. Sexual dysfunction was defined for a total score  $\geq 19$ , or  $\geq 5$  for one question, or  $\geq 4$  for 3 questions. Regular sexual activity was defined as having at least three sexual intercourse per week.

### 2.3. Statistical Analyses

Data were analysed using IBM 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. The Chi-square or Fisher's exact tests were used to compare categorical variables where applicable. The statistical significance was set at  $p < 5\%$ .

## 3. Results

### 3.1. Characteristics of the Study Participants

We enrolled a total of 170 participants of whom 95 (55.9%) were females (Table 1). The mean age was  $60.46 \pm 10.66$  years with a range between 30–85 years. Half of participants were  $\geq 60$  years old; global heart failure with altered LVEF was the major type of heart failure. Amongst the cardiovascular risk factors, hypertension was mostly represented (Table 2).

Table 1. Demographic characteristics of participants.

Variables	Number (n=170)	Percentage (%)
Sex		
Female	95	55.9
Male	75	44.1
Age		
[18 – 30]	0	0
[30 – 40]	6	3.5
[40 – 50]	26	15.3
[50 – 60]	41	24.1
$\geq 60$	97	57.1
Marital status		
Married	71	41.8
Non Married	99	58.2
Level of education		
None	29	17.1
Primary	69	40.6
Secondary	56	32.9
University	16	9.4

Table 2. Clinical and paraclinical characteristics of the study population.

Variables	Effective (n=97)	Percentage (%)
Type of Heart Failure		
Right HF	20	11.8
Left HF	26	15.3
Global HF	51	72.9
NYHA class		
I	11	11.3
II	42	43.3
III-IV	44	45.4
LVEF		
Preserved	18	18.6
Mid-range	18	18.6
Altered	61	62.8
Baseline heart disease		
Hypertensive	30	30.9
Ischemic	12	12.4
Dilated	22	22.7
Valvulopathy	25	25.8
Toxic	8	8.2

### 3.2. Prevalence of Sexual Dysfunction

Among the 170 participants, 97 had regular sexual intercourse.

The prevalence of sexual dysfunction was 57.7% (56/97). The main sexual disorders were: Sexual desire disorders (21.65%), vaginal lubrication disorders (20%) in women, erectile disorders in men (17.3%), orgasmic dysfunction (7.22%), arousal disorders (4.44%) and sexual satisfaction disorders (1%).

### 3.3. Risk Factors of Sexual Dysfunction

The risk factors of SD in bivariate analysis were: class III-IV of NYHA classification (OR: 3.15[1.22 – 8.32], p

value=0.008), use of beta-blockers (OR: 3.77 [1.26 – 12.65], p value=0.0081), hypertension (OR: 4.1 [1.53 – 11.5], p value=0.0017), dyslipidemia (OR: 3.41 [1.06 – 12.85], p value=0.023), fear of cardiac attacks (OR: 6.82[2.54 – 18.68], p value<0.001) (Table 3).

After multivariate analysis only female gender (p=0.008), age>60 years (p=0.001), hypertension (p=0.0017), use of beta blockers (p=0.0081), fear of cardiac attacks (p<0.001), remained significantly associated with SD.

**Table 3.** Risk factors of sexual dysfunction on bivariate analysis.

Variables	Sexual dysfunction		OR	CI (95%)	p value
	Yes (n=56)	No (n=41)			
Age (years)					
[30 – 40]	2 (3%)	4 (10%)	0.34	0.03 – 2.56	0.212
[40 -50]	10 (18%)	8 (20%)	0.89	0.52 – 4.63	0.405
[50 – 60]	11 (20%)	12 (29%)	0.59	0.44 – 3.05	0.672
≥ 60	33 (59%)	17 (41%)	2.02	0.34 – 2.1	0.043*
Sex					
Male	24 (43%)	28 (68%)	0.35	0.14 – 0.87	0.013*
Female	32 (57%)	13 (32%)			
Stage NYHA					
Stage I	4 (7%)	7 (17%)	0.37	0.08 – 1.62	0.128
Stage II	20 (36%)	22 (54%)	0.48	0.19 – 1.18	0.078
Stage III- IV	32 (57%)	12 (29%)	3.15	1.22 – 8.32	0.008*
Duration of symptoms (years)					
<5	32 (57%)	28 (68%)	0.62	0.24 – 1.56	0.264
[5-10]	14 (25%)	6 (15%)	1.94	0.62 – 6.81	0.213
≥ 10	10 (18%)	7 (17%)	1.06	0.32 – 3.62	0.920
LVEF					
Altered	31 (55%)	30 (73%)	0.45	0.17 – 1.17	0.073
Mid-range	12 (22%)	6 (15%)	1.59	0.49 – 5.68	0.395
Preserved	13 (23%)	5 (12%)	2.18	0.64 – 8.49	0.168
Loop diuretic	35 (62.5%)	22 (53.66%)	1.44	0.59 – 3.53	0.382
Thiazide diuretic	21 (37.5%)	18 (43.9%)	0.77		0.525
ACEIs	45 (80.36%)	36 (87.8%)	0.57	0.14 – 1.99	0.329
CCB	38 (67.86%)	21 (51.22%)	2.01	0.81 – 5.01	0.097
ARB	26 (46.43%)	15 (36.59%)	1.5	0.61 – 3.73	0.332
Digitalic	29 (51.79%)	17 (41.61%)	1.52	0.62 – 3.71	0.315
Beta-blockers	22 (39.29%)	6 (14.63%)	3.77	1.26 – 12.65	0.0081 *
Statins	12 (21.43%)	4 (9.76%)	2.52	0.68 – 11.55	0.126
Anti-arrhythmic drugs	7 (12.5%)	7 (17.07%)	0.69	0.19 – 2.56	0.527
Alcohol	23 (41%)	16 (39%)	1.09	0.44 – 2.7	0.839
Tobacco					
Active	6 (10%)	1 (3%)	4.8	0.54 – 226.17	0.120
Past-history	16 (29%)	5 (12%)	2.88	0.88 – 10.97	0.053
No history	34 (61%)	35 (85%)	0.26	0.08 – 0.79	0.008*
Weight					
Normal	39 (70%)	37 (90%)	0.25	0.06 – 0.87	0.015*
Overweight	8 (14%)	3 (7%)	2.11	0.46 – 13.1	0.285
Obesity	9 (16%)	1 (3%)	7.66	0.97 – 343.9	0.029*
Hypertension	30 (53.57%)	9 (21.95%)	4.1	1.53 – 11.5	0.0017*
Diabetes	13 (23.21%)	3 (7.32%)	3.83	0.94 – 22.25	0.037*
Dyslipidemia	18 (32.14%)	5 (12.2%)	3.41	1.06 – 12.85	0.023*
Sedentary	17 (30%)	18 (44%)	0.56	0.22 – 1.4	0.170
Stress					
Low	21 (38%)	11 (27%)	1.64	0.63 – 4.39	0.270
Moderate	22 (39%)	22 (53%)	0.56	0.23 – 1.36	0.160
High	13 (23%)	8 (20%)	1.25	0.42 – 3.9	0.662
Sexual intercourse	25 (45%)	26 (63%)	0.47	0.19 – 1.15	0.067
Fear of partner	27 (48%)	9 (22%)	3.31	1.24 – 9.29	0.0082*
Fear of heart attack	40 (71%)	11 (27%)	6.82	2.54 – 18.68	<0.001*

\*statistically significant.

ACEIs: Angiotensin Converting Enzyme Inhibitors, ARB: Angiotensin Receptor Blockers, CCB: Calcium Channel Blockers, CI: Confidence Interval, LVEF: Left Ventricular Ejection Fraction, OR: Odd Ratio.

## 4. Discussion

Heart failure has many consequences that have been studied in literature [5]. But in our context data concerning sexual dysfunction in this population are scarce, leading us to conduct this study with the aim of determine prevalence and risk factors of sexual dysfunction in patient with chronic heart failure. This topic was important because in all culture sexuality has a great place in the wellbeing of an individual [12]. At the end of this study we found that: the prevalence of sexual dysfunction was 57.7%, interesting various entities as sexual desire disorders, vaginal lubrication disorders, erection disorders, orgasmic dysfunction, arousal disorders and sexual satisfaction disorders. The independent risks factors of sexual dysfunction were: Female gender, age >60 years, hypertension, use of beta blockers, fear of cardiac attacks.

The high prevalence of sexual dysfunction is similar to the result of Hoesktra *et al.* in 2002 in Holland [13]. This high burden of sexual dysfunction in chronic heart failure is explained by psychological stress and hemodynamic alteration linked to the effect of drugs, co-morbidity or directly to the disease in these patients [7, 8]. Contrary to previous studies [13-7], this sexual dysfunction was mostly frequent in female than male; this can be explained by the fact that our sample size was mainly constituted by older participants and post-menopausal women, knowing that menopause is associated with hormonal disorders that frequently alter sexual function.

Sexual desire disorders, vaginal lubrication and erection disorders were the most frequent sexual disorders in our population; Schwarz *et al.* in 2008 had similar findings concerning vaginal lubrication and erection disorders [7]. Jaarsma *et al.* in 2014 found like us that sexual desire disorders are predominant with a prevalence of 45% [14].

Hypertension was independently associated with sexual dysfunction in this population, like dyslipidemia and diabetes found in previous studies; this finding is explained by the direct effect of oxidative stress and atherosclerosis in vessels implicated in erection [15, 16]. The use of beta-blockers (BB) was also an independent risk factor of sexual dysfunction because of the side effect of drug, mainly with non-selective beta-blockers [17]. But this result should be taken with caution because some patients were placed on cardio-selective beta-blockers and other on non-selective BB; we cannot therefore generalize this result. A psychological factor like fear of heart attack was associated with SD as explained by normal physiology of sexuality which places sexual desire as the first component of sexual intercourse process [18].

## 5. Conclusion

Sexual Dysfunction is frequent in patient with heart failure; in order to reduce its burden, psychological education is needed in patient with heart failure. Also, adequate

management of other co-morbidities can result in significant improvement of the quality of life.

## List of Abbreviations

AHA: American Heart Association; ASEX: Arizona Sexual Experience Scale; BB: Beta-Blockers; CHY: Central Hospital of Yaoundé; CVDs: Cardiovascular Disease; GHY: General Hospital of Yaoundé; HF: Heart Failure; IQR: Interquartile Range; LVEF: Left Ventricular Ejection Fraction; NYHA: New York Health Association; SD: Sexual Dysfunction; SPSS: Statistical Package of Social Sciences; YUTC: Yaoundé University Teaching Hospital.

## 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 authorizations were 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 took part in this study.

### *Consent for Publication*

Not applicable.

### *Availability of Data and Materials*

The datasets used and analyzed during the current study are available from the corresponding author on reasonable request.

### *Competing Interests*

The authors declare that they have no competing interests.

### *Funding*

None.

## Authors' Contributions

JB, BE, DT and MNT: study conception and design, data collection and analysis, interpretation of results, manuscript writing and critical revision. JB, BH, AM, SK: study conception and design, data collection and analysis, interpretation of results and critical revisions. All the authors read and approved the final version of the manuscript.

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