

Anxiety and Depressive Disorders in Patients with Cirrhosis in Two Tertiary Hospitals and One Secondary Hospital in Ouagadougou City

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Abstract

Introduction: To assess anxiety and depressive disorders in patients with cirrhosis in the hepato-gastroenterology departments of two tertiary hospitals and one secondary hospital in the city of Ouagadougou. **Patients and Methods:** This was a descriptive and analytical cross-sectional study with prospective data collection. This study lasted five months and involved patients with cirrhosis. The diagnosis of cirrhosis was made on the basis of clinical and paraclinical criteria. Anxiety and depression were assessed using the HADS (Hospital Anxiety and Depression Scale) score. **Results:** A total of 90 patients were included. There were 70 men (77.8%). The mean age was 51.5 ± 26.5 years. Anxiety was observed in 48 patients (53.3%). Anxiety symptoms were evident in 35.5% of patients. Forty-two patients (46.7%) had depression. Depressive symptoms were evident in 30% of cases. Low socioeconomic status and family healthcare were the risk factors for anxiety. Factors associated with depression were family healthcare and denial of the disease after diagnosis. There was a correlation between anxiety and depression in patients with cirrhosis. **Conclusion:** Anxiety-depressive disorders are common in patients with cirrhosis. The care of patients with cirrhosis must be multidisciplinary. Indeed, these disorders must be detected and prevented in order to allow a better prognosis

for these patients.

Keywords

Anxiety, Depression, Cirrhosis, Africa

1. Introduction

Cirrhosis is a major public health problem and a significant cause of morbidity and mortality worldwide [1]. These etiologies are diverse and differ depending on the region of the world. It can be due to chronic infection by the hepatitis B or C virus, obesity, non-alcoholic fatty liver disease, excessive alcohol consumption, or autoimmune diseases [2]. Cirrhosis develops over several years. Indeed, all chronic liver diseases can lead to cirrhosis. In developing countries, chronic viral hepatitis is the leading etiology of cirrhosis [3]. Burkina Faso is located in an area with high endemicity of viral hepatitis. The World Health Organization (WHO) estimated the prevalence of hepatitis B virus infection in Burkina Faso at 10.1% [4].

Cirrhosis has two main stages: the compensated stage, i.e., without symptoms, and the decompensated stage. The latter is defined by the development or presence of ascites, gastrointestinal bleeding, and hepatic encephalopathy. Survival rates vary considerably depending on the stage. In our context, the majority of cirrhosis cases are diagnosed at the decompensated stage [5] [6]. These symptoms impact the psychological well-being of patients with cirrhosis. Psychological symptoms include stress, depression, and anxiety. In 2017, cirrhosis caused more than 1.32 million deaths worldwide [7]. Uncertainty about the progression of the disease, limitations in daily activities, and the prospect of liver transplantation or progression to primary liver cancer can promote the emergence of anxiety and depressive symptoms in these patients. The presence of significant anxiety and depressive symptoms in patients with cirrhosis is the cause of a decrease in health-related quality of life [2]. Health-related quality of life is a broad term that reflects individuals' perceptions of how the effects of illness and treatment affect their emotional health, physical health, functional status, and social status [8].

Cirrhosis is a common reason for hospitalization in hepato-gastroenterology departments in Burkina Faso [5]. The World Health Organization (WHO) has defined health as a state of complete physical, mental, and social well-being. In our context, however, few studies have addressed the psychiatric disturbances that may occur in patients with cirrhosis.

The aim of our study was to evaluate anxiety and depressive disorders in patients with cirrhosis in the hepato-gastroenterology department of the University Hospitals Yalgado Ouedraogo, Tengandogo, and Schipra Hospital in the city of Ouagadougou.

2. Patients and Methods

This was a descriptive and analytical cross-sectional study with prospective data collection. It took place over a period of five months, from February 20 to July 19, 2024. This study involved the hepato-gastroenterology departments of two tertiary hospitals (Yalgado Ouédraogo University Hospital and Tengandogo University Hospital) and one secondary hospital (Schiphra Hospital) in the city of Ouagadougou, Burkina Faso. Patients with cirrhosis constituted the study population.

Patients with cirrhosis who were seen in consultation or hospitalized in the hepato-gastroenterology departments of these hospitals were included. Informed consent was obtained from all patients.

We did not include patients with a personal history of psychiatric disorders before the diagnosis of cirrhosis.

- The diagnosis of cirrhosis was made on:
 - Histological criterion: F4 fibrosis in the METAVIR histological score;
 - Non-invasive fibrosis test: liver elasticity greater than 13 - 15 kPa on elastometry or APRI score (aspartate aminotransferase to platelet ratio index) > 1;
 - or a bundle of clinical arguments (firm or hard, painless hepatomegaly with an irregular anterior surface and a sharp lower edge, portal hypertension syndrome, hepatocellular insufficiency syndrome, clinical cholestasis syndrome), biological (hypoalbuminemia, low prothrombin and factor V levels, elevated transaminases with an ASAT/ALAT ratio > 1, hyperbilirubinemia with a conjugated bilirubin/total bilirubin ratio \geq 70%), and morphological (Radiology: chronic liver disease, signs of portal hypertension. Upper digestive endoscopy: esophageal and/or cardiolumbar varices, portal hypertension gastropathy).
- Anxiety and depression were assessed using the Hospital Anxiety and Depression Scale (HAD). It is a widely validated scale for assessing anxiety and depression in patients with chronic medical conditions. It is well-suited to our context because it is simple to administer and does not require specialized psychiatric expertise. It consists of 14 items rated from 0 to 3. Seven questions relate to anxiety (total A) and seven others to the depressive dimension (total D), thus allowing two scores to be obtained, the maximum score for each being 21. To screen for anxiety and depressive symptoms, the following interpretation can be proposed for each of the scores (A and D):
 - 7 or fewer: absence of symptoms;
 - 8 to 10: doubtful symptoms;
 - 11 and over: certain symptoms.

Psychiatric support was offered to patients diagnosed with anxiety and/or depression.

Operational definitions

- Origin of support
 - Self-payment: when the costs of health care are covered by the patient himself, whether or not he has health insurance.

- Family care: when the costs of health care are covered by the patient's family or by third parties.
- Socioeconomic level

The patients' socioeconomic level was assessed based on their means of transportation:

 - High socioeconomic level: patients owning a four-wheeled vehicle,
 - Medium socioeconomic level: patients owning a motorcycle,
 - Low socioeconomic level: patients owning a bicycle or traveling on foot.
- Residence
 - Urban: capital of the region or province of Burkina Faso,
 - Rural: other towns or villages in the country of Burkina Faso.

3. Results

General characteristics of the study population

During the study period, 103 patients with cirrhosis were seen in consultation or hospitalized in the hepato-gastroenterology department of the Yalgado Ouédraogo and Tengandogo University Hospitals and Schiphra Hospital. A total of 90 patients were included as shown in **Figure 1**.

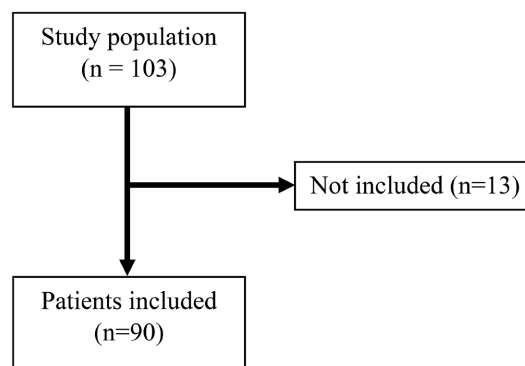


Figure 1. Flow diagram.

There were 70 men, with a sex ratio of 3.5. The mean age was 51.5 ± 26.5 years, with extremes of 26 and 78 years. Half of our patients had no formal education and were of low socioeconomic status. The majority of patients were married. The mean duration of cirrhosis was 12.4 months, with extremes of 1 to 48 months. Four patients were in denial of their disease (**Table 1**).

Anxiety and depression

Anxiety was observed in 53.3% of patients and depression in 46.7% of cases. Forty-two patients presented with anxiety-depressive disorders (**Table 2**).

Factors associated with anxiety

In univariate analysis, factors associated with anxiety were socioeconomic level, origin of healthcare access, and use of herbal medicine (**Table 3**).

In multivariate analysis, a low socioeconomic level was significantly associated with anxiety (OR = 3.15; 95% CI: 1.75 - 6.09; $p = 0.031$). Similarly, family involvement

Table 1. General characteristics of the study population.

Variable	Effective
Gender (male/female)	70/20
Level of study (none/primary/secondary/university)	42/15/25/8
Married (yes/no)	83/7
Socioeconomic level (low/middle/high)	49/41/0
Support (personal/family)	23/67
Sexual activity (normal/disturbed)	5/85
History (hypertension*/diabetes/HBV**)	21/14/39
Duration of symptoms (≤ 12 months)	85

*High blood pressure; **Hepatitis B virus.

Table 2. Prevalence of anxiety and depression.

	Effective	Percentage
Anxiety		
Absent	42	46.7
Doubtful	16	17.8
Certain	32	35.5
Depression		
Absent	48	53.3
Doubtful	15	16.7
Certain	27	30

Table 3. Factors associated with anxiety.

Variable	Number of employees (n = 90)	Anxiety	OR (CI = 95%)	p-value
Sex				
Male	70	38		
Female	20	10	1.18 (0.43 - 3.21)	0.37
Married				
Yes	87	46		
No	3	2	0.56 (0.04 - 6.41)	0.34
Level of study				
Schooled	48	26		
Not in school	42	22	1.17 (0.46 - 2.46)	0.43
Socioeconomic level				
Down	49	30		

Continued

AVERAGE	41	18	2.01 (0.96 - 4.68)	0.001
Origin of care support				
Personal	63	39		
Family	27	9	3.21 (1.25 - 8.38)	0.007
Residence				
Urban	50	30		
Rural	40	18	1.83 (0.79 - 4.25)	0.08
Reaction to the announcement of the diagnosis				
Refusal	30	19		
Acceptance	60	29	1.84 (0.75 - 4.53)	0.09
Phytotherapy				
Yes	47	29		
No	43	19	2.03 (0.87 - 4.72)	0.03

in patient care significantly increased the risk of anxiety (OR = 1.70; 95% CI: 0.87 - 4.37; $p = 0.0017$) (**Table 4**).

Table 4. Factors associated with anxiety in multivariate analysis.

Variable	OR (CI = 95%)	p-value
Low socioeconomic level	3.15 (1.75 - 6.09)	0.031
Family care management	1.7 (0.87 - 4.37)	0.0017
Phytotherapy	2.05 (0.28 - 11.21)	0.062

Factors associated with depression

In bivariate analysis, family healthcare management, area of residence, and reaction to the announcement of the illness were factors associated with depression (**Table 5**).

Table 5. Factors associated with depression

Variable	Number of employees (n = 90)	Anxiety	OR (CI = 95%)	p-value
Sex				
Male	70	32		
Female	20	10	0.84 (0.31 - 2.27)	0.27
Married				
Yes	87	40		
No	3	2	0.45 (0.03 - 4.86)	0.27

Continued

Level of study				
Schooled	48	20		
Not in school	42	22	0.64 (0.28 - 1.49)	0.16
Socioeconomic level				
Down	49	30		
AVERAGE	41	18	2.01 (0.96 - 4.68)	0.001
Origin of care support				
Personal	63	33		
Family	27	9	2.20 (0.85 - 5.63)	0.005
Residence				
Urban	50	30		
Rural	40	12	3.50 (1.44 - 8.45)	0.002
Reaction to the announcement of the diagnosis				
Refusal	30	20		
Acceptance	60	22	3.45 (1.37 - 8.69)	0.04
Phytotherapy				
Yes	47	25		
No	43	17	1.72 (0.75 - 4.01)	0.1

There was a significant association between anxiety and depression.

In multivariate analysis, family involvement in patient care appeared as a factor significantly associated with depression (OR = 4.16; 95% CI: 1.93 - 12.41; p = 0.00028). Disease denial was also correlated with depression (OR = 0.45; 95% CI: 0.19 - 8.66; p = 0.0035) (**Table 6**).

Table 6. Factors associated with depression in multivariate analysis.

Variable	OR (CI = 95%)	p-value
Family care management	4.16 (1.93 - 12.41)	0.00028
Urban residence	1.8 (0.95 - 5.52)	0.064
Denial of illness	0.45 (0.19 - 8.66)	0.0035

4. Discussion

There was a male predominance with a sex ratio of 3.5. This predominance is consistent with the literature data concerning cirrhosis in Burkina Faso. Indeed, Somé et al. in 2021 and Ky et al. in 2024 reported a sex ratio of 2.7 and 2.5, respectively [5] [6]. It has also been reported by different studies in Africa or the Middle East. Al Ta'ani et al., in their study on the burden of cirrhosis and other chronic liver diseases in the Middle East and North Africa region, reported this male pre-

dominance [9]. In our context, viral hepatitis B and C are the leading causes of cirrhosis. In addition to viruses, there are other causes such as alcohol consumption. Men are more exposed to other risk factors. Furthermore, in the context of monitoring chronic hepatitis B, men are less compliant with treatment than women [10]. These factors could explain why they are more affected by cirrhosis. The average duration of symptomatology evolution was 12.4 months. Our patients consult late, on the one hand, due to the lack of universal health insurance, which constitutes a barrier to access to care. On the other hand, in our context, the majority of patients first resort to traditional care before consulting the hospital. Thus, cirrhosis is often discovered in the decompensation phase. A third of our patients refused their illness. This could be explained by the fact that in Africa, chronic illness is often difficult to accept. Indeed, there are two types of classification that overlap: the natural or “hospital” illness, and the indigenous illness that falls under African medicine [11]. Thus, more than half of our patients have used traditional medicine.

Depression was observed in 46.7% of our patients. These results are close to those of Bianchi *et al.* in Italy and Huet *et al.* in Canada, who reported depression in 50% and 44.8% of patients with cirrhosis, respectively. Hernaez *et al.* reported a prevalence of 15.6% [12]. Anxiety was noted in half of our patients. These results are close to those of Hernaez *et al.*, who reported anxiety in 42.6% of patients with cirrhosis [12]. Aghanwa and Ndububa in Fiji noted a prevalence of 12.4% [13]. The prevalence of depression and anxiety in patients with cirrhosis varies across studies, ranging from 17.6% to 72% for depression and 10% to 79% for anxiety [2]. This variation may be related to the cause of cirrhosis but also to the diagnostic tools used. Their interpretation requires understanding how depression and anxiety were assessed and distinguishing depressive/anxiety symptoms from depressive/anxiety disorders. Also, most studies on depression or anxiety describe depressive symptoms assessed using standardized screening instruments [2].

Our study did not find a significant correlation between gender, marital status, education level, and anxiety or depression. Hernaez *et al.* reported a significant association between male gender and anxiety. They observed a relationship between marital status and depression. Indeed, widowhood was a risk factor for the occurrence of depression [13]. Disease denial emerged as a risk factor for depression in cirrhotic patients. While it may temporarily alleviate the anxiety associated with the diagnosis, it compromises treatment adherence and adaptation to the chronic nature of the disease. Early screening, combined with psychosocial support and therapeutic education programs, can promote acceptance of the illness. Collaboration between gastroenterologists, psychologists, and social workers is therefore essential to reduce the occurrence of anxiety and depressive disorders. Patients who reject the idea of a chronic illness or who fear the lack of curative treatment are at risk of developing anxiety-depressive disorders. Some patients resort to traditional treatments, attributing their illness to a supernatural origin. Belief in a supernatural origin of illness can delay medical consultation and seek-

ing care, leading to a longer duration of symptoms and a worsening of the clinical condition. This delay in treatment has been identified as a risk factor for anxiety and depression [14]. A low socioeconomic level and family caregiving were associated with anxiety. These are patients who are economically precarious. The onset of a chronic illness disrupts a fragile balance. According to the report of the National Institute of Statistics and Demography (INSD) in 2021, 43.2% of the population was below the poverty line in Burkina Faso [15]. In addition, a statistically significant association was found between the presence of depression and the family background of healthcare. The establishment of universal health insurance in our country could improve access to healthcare for our populations.

However, our study has some limitations. Its cross-sectional design does not allow for establishing a causal relationship between anxiety and depressive disorders and the associated factors. The recruitment, limited to patients hospitalized in two hospitals in the city of Ouagadougou, may introduce a selection bias and limit the generalizability of the results to all cirrhotic patients. The use of the HADS scale, although validated, is a screening tool rather than a diagnostic instrument, which may lead to under- or overestimation of cases. Finally, the lack of longitudinal follow-up does not allow for assessing the evolution of anxiety and depressive disorders or their impact on the prognosis of cirrhosis.

5. Conclusion

Our study highlighted a high prevalence of anxiety and depression in patients with cirrhosis. These disorders have various causes. They are the cause of an alteration in the quality of life in these patients. It is important to recognize and treat them to improve the prognosis of our patients. To achieve this, it is necessary to ensure multidisciplinary care for patients with cirrhosis. This will allow, on the one hand, prevention of anxiety and depression in these patients and, on the other hand, early detection and treatment of them. The effectiveness of prevention strategies for anxiety and depressive disorders is based on an understanding of their determinants. In our context, the risk factors identified include denial of the disease and family management of health care.

Conflicts of Interest

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

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