

Original Research Article

Factors associated with depression among women living with HIV in Bangui, Central African Republic

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ABSTRACT

Background: Depressive disorders significantly affect the well-being and quality of life of people living with HIV, particularly women. This study investigated the extent of mental health issues among women living with HIV in Bangui and analyzes associated factors.

Methods: A cross-sectional analytical study was conducted from January 1 to November 30, 2024, involving HIV-positive women at the National Reference Center for Sexually Transmitted Infections and Antiretroviral Therapy in Bangui. Depression was assessed using the Beck Depression Inventory and a second questionnaire was used to assess the determinants of mental health. Univariate and multivariate analyses identified factors associated with depression, while controlling for potential confounding effects.

Results: A total of 570 women living with HIV were recorded during the study period. Their ages ranged from 18-63 years, with an average of 31 years (± 6). The prevalence of depression among HIV-positive women in Bangui was estimated to be 54.7%. Having multiple children to care for (OR=1.93, 95% CI- 1.30-2.85, $p=0.012$), absence of income-generating activity (OR=2.18; 95% CI- 1.60-2.98, $p=0.001$), psychological pressure from the environment (OR=2.03, 95% CI- 1.14-4.18; $p=0.003$), the experience of stress (OR=3.47; 95% CI- 2.11-5.99; $p<0.001$) and being abandoned by a partner were the main factors associated with depression (OR=2.94; 95% CI- 1.10-7.85; $p=0.012$).

Conclusions: Depression is highly prevalent among HIV-positive women in Bangui. Early detection and integrated psychosocial support are essential to address this public health concern.

Keywords: Bangui, Central African Republic, Depressive disorders, HIV, Women

INTRODUCTION

In 2019, the World Health Organization (WHO) estimated that approximately 970 million people were living with a mental disorder, which is nearly one in eight people worldwide.¹ Mental disorders thus occupy third place among the factors contributing to disabilities and infirmities.² Depression alone accounted for

approximately 15% of the global burden of disease in 2020.³ The most common disorders are anxiety disorders and depressive episodes.⁴ The COVID-19 pandemic exacerbated this situation, leading to a 26% increase in anxiety cases and a 28% increase in depression cases in 2020.¹ This high prevalence of mental disorders particularly affects vulnerable groups, including people living with HIV/AIDS (PLHIV).⁵

Numerous studies have shown that depression is significantly more common among PLHIV than in the general population.^{6,7} Although therapeutic advances have allowed better control of HIV infection, PLHIV continue to face major psychosocial challenges, such as stigma, discrimination, and social isolation, which compromise their mental health.⁸ These disorders have significant repercussions not only for their well-being and quality of life but also for their adherence to antiretroviral treatment and medical follow-up.^{9,10} Women living with HIV (WLHIV) are particularly prone to depression, with higher rates than those observed in men.¹¹ This increased vulnerability is explained by a combination of biological, psychosocial, and structural factors.^{12,13}

The Central African Republic (CAR), with HIV infection rates of 3.1% and 3.6% among women, is one of the most affected countries in Central Africa.¹⁴ The country has faced a particularly difficult humanitarian context for several decades. It is marked by a deterioration of the social fabric, a degradation of its health system with limited access to basic care services, and an environment where HIV-related stigma persists. These converging factors exacerbate the psychological vulnerability of people living with HIV, particularly women living with HIV, who are more exposed to psychosocial risks. Depressive disorders among people living with HIV generally go unnoticed and can affect not only their quality of life, social interactions, and therapeutic adherence but also their life expectancy.^{15,16}

Despite this reality, research on factors associated with depression in this population in the CAR remains limited. In this context, the present study aimed to determine the prevalence of depression and identify the factors associated with it among women living with HIV followed at the National Reference Center for Sexually Transmitted Infections and Antiretroviral Therapy in Bangui (CNRISTARV), Central African Republic.

METHODS

Type and period of the study

This was a cross-sectional, descriptive, and analytical study covering the period from 1 January 2024 to 30 November 2024.

Study setting

This study was conducted at the National Reference Center for Sexually Transmitted Infections and Antiretroviral Therapy in Bangui (CNRISTARV). This center was chosen because of its central role in the care of people living with HIV in the Central African Republic.¹⁷ It serves as a national reference structure, welcoming many patients, making it a relevant site for evaluating mental health issues among women living with HIV (WLHIV).

Study population

The study population consisted of HIV-positive women followed at the National Reference Center for Sexually Transmitted Infections and Antiretroviral Therapy in Bangui (CNRISTARV).

Inclusion criteria

All HIV-positive women aged 18 years and over who came for medical consultation and/or who were receiving antiretroviral treatment during the study period and who agreed to participate in the study.

Exclusion criteria

All HIV-positive women aged 18 years and over who came for medical consultation and/or who were receiving antiretroviral treatment during the study period but did not agree to participate in the study were excluded.

Sampling

An exhaustive survey of all women meeting the inclusion criteria during the study period was conducted. Recruitment was performed on a voluntary basis.

Data collection and analysis

Data collection procedure

Participants were informed about the study's objectives and the anonymous and confidential nature of the data and signed an informed consent form. Data collection was carried out by trained investigators using two face-to-face administered questionnaires:

The first questionnaire collected sociodemographic, clinical, and lifestyle information.

The second was the Beck depression inventory (BDI), which consists of 13 sets of 4 statements rated from 0 to 3. It is a scale used to assess the level of depression.¹⁸ The scores obtained allowed the participants to be classified into four levels of depression including (i) 0-4: no depression, (ii) 4-7: mild depression, (iii) 8-15: moderate depression, and (iv) 16 and above: severe depression.

Study variables

Dependent variables: the presence of a depressive syndrome was coded 1 if the BDI score was ≥ 5 (regardless of severity level) and 0 if the score was ≤ 4 .

Independent variables: sociodemographic and lifestyle characteristics (age, education level, marital status, occupation, number of dependent children, and housing conditions) and clinical and psychosocial characteristics (history of verbal or physical violence, stress, family pressure, abandonment or death of the spouse).

Data analysis

The collected data were analysed using Excel and Epi-info version 7.2 software. The proportion, mean, standard deviation (SD), odds ratio (95% CI), and p value at the significance threshold of 0.05 were used for analysis and interpretation. A univariate analysis was first conducted to explore associations between the dependent variable (depression) and each independent variable. Variables showing a statistically significant association ($p < 0.05$) were then introduced into a multivariate logistic regression model. This method identified factors independently associated with depression, controlling for potential confounding effects.

RESULTS

Sociodemographic characteristics and lifestyle of the women living with HIV who participated in the survey

A total of 570 women living with HIV were included in the study. The age of the participants ranged from 18-63 years, with an average of 31 years (± 6). More than half of the sample ($n=320$; 56.1%) consisted of young women under 24 years of age. Most participants ($n=456$; 80.0%) reported being single, whereas 434 (76.1%) had more than two children to care for.

Table 1: Sociodemographic characteristics of the women living with HIV who participated in the survey.

Socio-demographic variables	Number (n=570)	%
Group age (years)		
≤24	320	56.1
>24	250	43.9
Matrimonial situation		
Married	114	20.0
Single	456	80.0
Number of dependent children		
>2	434	76.1
≤2	136	23.9
Residential type		
With parents/tutors	402	70.5
With partner	100	17.5
Rental house	68	12.0
Level of education		
Primary/no instruction	292	51.2
Secondary and above	278	48.8
Women's occupation		
Have a job/income-generating activities	264	46.3
No job	306	53.7

In terms of education, 292 women (51.2%) were either unschooled or had reached only the primary level. With respect to housing conditions, 402 participants (70.5%)

lived with family members or guardians. Additionally, more than half ($n=306$; 53.7%) had no income-generating activity (Table 1).

Prevalence and characteristics of depression

Out of the 570 participants, 312 (54.7%) experienced depressive symptoms. Among the women with depressive symptoms, the majority suffered from mild depression, with 189 cases (60.7%). Moderate depression affected 111 women (35.7%), and severe depression affected 11 women (3.6%). The main subjective symptoms reported included fatigue (73.6%), feelings of hopelessness (66.3%), sadness (54.2%), sleep disturbances (43.7%), loss of self-esteem (22.9%), and shame related to HIV status (8.3%) (Table 2).

Table 2: Prevalence and main symptoms of depression according to the Beck scale (BDI).

Variables	Number	%
Presence of depressive symptoms		
Yes	312	54.7
No	258	45.3
Level of depression severity		
Slight depression	189	60.7
Moderate depression	111	35.7
Severe depression	11	3.6
Symptoms of depression		
Tired	229	73.6
Feeling of despair	206	66.3
Sad	169	54.2
Sleep disorders	136	43.7
Loss of self-esteem	71	22.9
Ashamed being HIV positive	25	8.3

Table 3: Feelings and painful experiences of women living with HIV who participated in the survey.

Variables	Frequency (n=570)	%
Psychological pressure from those around		
Yes	176	30.9
No	394	69.1
Experience of stress		
Yes	346	60.7
No	224	39.3
Verbal or physical abuse		
Yes	56	9.8
No	514	90.2
Partner abandonment		
Yes	62	10.9
No	508	89.1
Death of the spouse		
Yes	22	3.9
No	548	96.1

Feelings and painful experiences of the women who participated in the survey

Among the 570 women surveyed, 176 (30.9%) reported experiencing psychological pressure from their surroundings related to their serological status, and 346 (60.7%) reported frequently managing stress. Verbal

and/or physical violence was reported by 56 (9.8%) of the women surveyed. The main painful situations experienced and mentioned by the women were abandonment by their partner after their HIV status was discovered (10.9%) and the death of their spouse (3.9%) (Table 3).

Table 4: Factors associated with depression among women living with HIV in Bangui.

Associated factors with depression	Depressive states		OR Crude (95% CI)	P value	OR adjusted (95% CI)	P value
	Yes	No				
Age group (Years)						
≤24	182	138	1			
>24	130	120	1.21 (0.87-1.69)	0.14		
Level of education						
Primary/None	145	147	1			
Secondary and above	148	130	0.87 (0.62-1.20)	0.22		
Matrimonial status						
Married	90	24	1		1	
Single	222	234	1.60 (0.95-2.7)	0.08	1.47 (0.95-2.49)	0.091
Number of dependent children						
>2	252	182	1		1	
≤2	60	76	1.75 (1.18-2.58)	0.002	1.93 (1.30-2.85)	0.012
Absence an income-generating activity						
Yes	92	172	1		1	
No	220	86	3.30 (2.33-4.67)	0.001	2.18 (1.60-2.98)	0.001
Residential type						
With parents	212	190	1	-	1	-
Together with partner	52	48	1.23 (0.66-2.39)	0.506	1.47 (0.82-2.27)	0.478
Alone in a rental house	54	14	0.44 (0.20-0.96)	0.066	0.68 (0.42-1.05)	0.060
Psychological pressure from those around						
Yes	126	50	1		1	
No	186	208	2.81 (1.92-4.13)	0.000	2.03 (1.14-4.18)	0.003
Experience of stress						
Yes	226	120	1		1	
No	86	138	3.02 (2.13-4.28)	0.000	3.47 (2.11-5.99)	0.000
Verbal and physical abuse						
Yes	36	20	1			
No	276	238	1.55 (0.87-2.75)	0.08		
Partner abandonment						
Yes	128	134	1		1	
No	184	124	3.00 (1.55-5.80)	0.001	2.94 (1.10-7.85)	0.012
Death of the spouse						
Yes	16	6	1			
No	296	252	0.74 (0.22-2.49)	0.628		

Factors associated with depression in women living with HIV

In the multivariate analysis, having more than two children to care for continued to be a strong predictor of depression (adjusted OR=1.93; 95% CI- 1.30-2.85; p=0.012). The absence of income-generating activity was also independently associated with a higher risk of depression (adjusted OR=2.18; 95% CI- 1.60-2.98;

p=0.001). Psychological pressure from the environment (adjusted OR=2.03; 95% CI- 1.14-4.18; p=0.003), the experience of stress (adjusted OR=3.47; 95% CI- 2.11-5.99; p<0.001), and being abandoned by a partner (adjusted OR=2.94; 95% CI- 1.10-7.85; p=0.012) also remained significantly associated with depressive symptoms.

Other variables such as age, education level, marital status, verbal or physical violence, and the death of a spouse were not significantly associated with depression in the adjusted model (Table 4).

DISCUSSION

In this study, the Beck depression inventory (BDI) was used to assess the prevalence and severity level and identify the main depressive symptoms among women living with HIV, followed by the CNRISTTARV. The choice of this tool is based on its psychometric robustness, which is widely documented in the literature. Several studies have indeed demonstrated its high sensitivity and specificity for depression screening in clinical settings, justifying its use as a first-line screening tool in healthcare settings.^{18,19}

Prevalence of depression among women living with HIV

The prevalence of depression observed in our sample was 54.7%, which was significantly higher than that reported in Ethiopia, where a prevalence of 32.5% was reported among women living with HIV.²⁰ This difference could be explained by the specific sociopolitical context of the Central African Republic (CAR). The country has experienced several decades of prolonged humanitarian crisis. This instability has profoundly affected the entire population, with particularly severe repercussions for the mental health and well-being of women, especially those living with HIV.²¹

Data analysis with Beck depression inventory (BDI) revealed that most women suffering from depression in our study had mild depression (60.7%), followed by moderate (35.7%) and severe (3.6%) depression. These results are consistent with those reported in several previous studies, with some variations.^{22,23} Notably, the prevalence of depression can be influenced by various factors, including the type of screening tool used and the sociocultural and economic context in which the study is conducted.

Sociodemographic characteristics and lifestyle of women living with HIV

The age of the participants ranged from 18-63 years, with an average of 31 years (± 6). This result is similar to those obtained in east Africa which reported that the age of the participants ranged from 18-50 years, with an average of 34.2 years (± 8).²⁴ More than half of the participants ($n=320$; 56.1%) were young women under 24 years of age. The majority ($n=456$; 80.0%) reported being single, and 434 (76.1%) had more than two children to care for. In terms of education, 292 women (51.2%) were either unschooled or had reached only the primary level. With respect to housing conditions, 402 participants (70.5%) lived with family members or guardians. Additionally, more than half ($n=306$; 53.7%) had no income-generating activity. These results differ from those reported by

Hatcher et al, where 37.5% of the participants were married, 48.5% had no children to care for, 46.2% were educated, and only 36.1% had no income-generating activity.²⁵ These differences could be explained by distinct sociocultural contexts and disparities in the social and economic dynamics of the populations studied.

Feelings and painful experiences of women living with HIV who participated in the survey

Psychological pressures exerted by their surroundings were reported by 176 participants (30.9%), followed by stress related to HIV status (346 cases, 60.7%) and verbal and/or physical violence (56 cases, 9.8%). The main painful situations experienced and mentioned by the women were abandonment by their partner after they discovered their HIV status (10.9%) and the death of their spouse (3.9%). These results highlight the importance of psychosocial determinants in the occurrence of depressive disorders among vulnerable populations.²⁶ Our results are consistent with the conclusions of Coulibaly et al in Mali, who highlighted the impact of stressful life events such as bereavement, family conflicts, and substance use on mental health.²⁷ Additionally, the systematic review by Lund et al reinforces this perspective by identifying social determinants such as poverty, stigma, violence, and isolation as major factors contributing to mental disorders, particularly in low-resource settings.²⁸

Factors associated with the presence of depressive symptoms in women living with HIV

Our results revealed that having more than two children to care for significantly increased the risk of depressive symptoms in women living with HIV (adjusted OR=1.93; 95% CI- 1.30-2.85; $p=0.012$). According to the World Federation for Mental Health, women are twice as likely as men to suffer from depression, particularly because of structural factors such as financial difficulties, low levels of formal education, and exposure to violence.²⁹ The accumulation of family responsibilities, such as raising multiple children, can thus exacerbate economic and emotional pressures, increasing the risk of depressive disorders.³⁰

Women reporting psychological pressure from their surroundings had a twofold-fold greater risk of depression (adjusted OR=2.03; 95% CI- 1.14-4.18; $p=0.003$). This factor is well documented in the literature. Stigma, social expectations, or family conflicts can exacerbate psychological distress, especially among women living with HIV, who may already face social marginalization.³¹ Those reporting stress were nearly 3.5 times more likely to report depressive symptoms (adjusted OR=3.47; 95% CI- 2.11-5.99; $p<0.001$). The WHO also indicates that people who have experienced stressful or traumatic events, such as stigma or social pressure, are at increased risk of depression.³¹

In the specific context of the Central African Republic, these results have particular significance. The country has been characterized by a history of recurrent armed conflicts, which have caused forced population displacement and deep degradation of basic health services.³² This repeated exposure to violence, stigma, and insecurity further weakens the mental health of the population.^{21,32} A systematic review reported similar findings, highlighting that women living with HIV are particularly vulnerable to depression due to the double stigma associated with gender and HIV status.³³ These contextual factors help to better understand the high prevalence of depressive symptoms observed in this study.

CONCLUSION

In our context, there is a high prevalence of depressive disorders among women living with HIV, which has been overlooked by national programs. This situation constitutes not only an alarming public health issue but also a violation of fundamental rights to mental health and well-being. All the actors in the health and social protection system are called upon to design and implement integrated interventions that are gender sensitive and adapted to women living with HIV urgently. A holistic approach that combines early detection, individualized care, and community support is crucial. However, complementary socio-anthropological studies are necessary to better document the specific psychosocial determinants of this vulnerable group and to evaluate the impact of the proposed interventions on mental health in the context of the Central African Republic.

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Ethical approval: The study was approved by the Institutional Ethics Committee of the Faculty of Health Sciences of Bangui and the Scientific Committee for the Validation of Study Protocols and Results (CSCVPER), (0011/UB/FACSS/CSCVPER.24)

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