Depression in HIV-positive Patients Attending the HIV Clinic at Fort Portal Regional Referral Hospital: Prevalence and Risk Factors

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ABSTRACT

In this cross-sectional descriptive study, conducted at the Fortportal Regional Referral Hospital HIV Clinic in the Kabarole District of Uganda, the prevalence and risk factors for depression were examined. Using the Kish Leslie method, 345 people were chosen, of whom 193 (56%) were female and 152 (44%) were male, yielding the necessary sample size. A high 34.5% of HIV-positive patients attending the HIV Clinic at Fort Portal Regional Referral Hospital reported having depression. The majority of these individuals had minimal depression (74%), followed by mild depression (17%), moderate depression (8%), and severe depression (1%), which was the least common type of depression. The biological, psychological, and social characteristics among participants were all linked to depression. Low socioeconomic position and stigma were the main risk factors for depression, while adherence to ART and family-social support were the main protective factors. The study advised raising awareness of stigma, the value of mental health, and psychosocial assistance among patients, caregivers, and communities.
Keywords: Prevalence, Depression, People living with HIV, HIV/AIDs, Stigma.

INTRODUCTION

The first prevalence studies on depression in HIV were published in the 1980s, and these studies reported significant variation in the proportions of subjects with depression [1, 2]. This variation was thought to be due to differences in the methodologies used in the studies, with the main factor being the definition used to conclude that someone had depression [1]. Due to the noticed discrepancies in findings associated with the lack of a standard definition for diagnosis, successive studies over the years have used the Diagnostic and Statistical Manual of Mental Disorders V (DSM V), which has been updated over time to address discrepancies in definitions and diagnoses in the studies [3]. Over the years, methods for managing patients with HIV and depression have been evaluated and classified as either psychosocial or pharmacotherapy[4–6]. These studies have primarily focused on assessing the best approach for this category of patients [7, 8]. Currently, the main concern and focus of research is understanding how the management of these patients can be integrated into routine healthcare for people living with HIV in both developed and developing countries [9, 10].

This study is based on the biopsychosocial theory, whose core concept is that depression occurs due to vulnerability determined by risk factors of biogenetic, psychological, and societal nature [11]. According to this theory, protective factors, also categorized into biogenetic, psychological, somatic, and societal nature, play a role in preventing depression [12]. According to this theory, life events with an idiosyncratic, stress-inducing value interact with this vulnerability, triggering severe or chronic distress that affects an individual's resilience and leads to symptoms of depression [8, 13]. The pathogenesis of depression is symbolized by a negative downward loop, in which interactions among symptoms, vulnerability, and stressors drive the patient toward a depressive condition [14]. Factors that contribute to depression in HIV-positive patients include biological factors, such as low CD4 count and ARVs, psychological factors, like distress upon HIV diagnosis, and social factors, which may include

self-blame, social isolation, and stigma [15–17]. Protective factors against depression in HIV-positive patients include biological factors like a normal CD4 count and genetic factors, psychological factors like a strong faith in religion, and social factors like strong social support from home and friends [1, 6, 18].

The diagnosis of depression is made using the DSM V criteria, and according to these criteria, one may have major depression or other forms of depression[19]. Several tools have been developed and validated to aid in the screening, diagnosis, and grading of depression. Tools used for diagnosis include the Patient Health Questionnaire (PHQ) and the Beck Depression Inventory [19, 20]. The PHQ-9 is specific to depression, scores each of the 9 DSM-V-related criteria, and is both sensitive and specific in its diagnoses, which has led to its prominence in primary care, clinical settings, and research studies. The Beck Depression Inventory (BDI), created by Aaron T. Beck, is a 21-question multiple-choice self-report inventory and is one of the most widely used psychometric tests for measuring the severity of depression [21]. The BDI was used by Namagga et al. in 2021[22] to study depression and HIV-associated neurocognitive disorders among HIV-infected adults in rural southwestern Uganda, and it has been tested for validity [22] The BDI-II is designed for individuals aged 13 and over and includes items relating to symptoms of depression, such as hopelessness and irritability, cognitions such as guilt or feelings of being punished, as well as physical symptoms such as fatigue, weight loss, and lack of interest in sex[22].

Depression in people living with HIV (PLWH) worsens prognosis and has been associated with increased mortality, worse adherence to ART, high viral load, suicide, and poor health-related quality of life[23, 24]. The prevalence of depression in PLWH has been reported to vary significantly depending on population characteristics, with percentages ranging from as low as 8% to as high as 81% in different communities [25]. The prevalence of depression for PLWH in Uganda was last reported to be 28.51% in 2017 [26]. However, given that the prevalence varies with population characteristics, there is a need to determine the current prevalence. A study conducted in Fort Portal to determine the prevalence of mental illness in HIV reported it to be 34% eight years ago [16]. This was a retrospective study with a minimal level of quality since there was no way to administer a tool to determine depression, the findings were not specific to depression, and the severity of the symptoms was not reported. Therefore, this study aims to determine the current prevalence, severity, and factors associated with symptoms of depression among people living with HIV attending Fort Portal Regional Referral Hospital HIV clinic.

Methodology
Study Design
This was a cross-sectional study conducted at Fort Portal Regional Referral Hospital.
Area of Study
The study recruited participants from People Living with HIV (PLWH) receiving care at Fort Portal Regional Referral Hospital (FRRH). FRRH is located in Fort Portal City, in western Uganda, and serves as a referral hospital for the districts of Bundibugyo, Kabarole, Kamwenge, Kasese, Ntoroko, and Kyenjojo. It is situated approximately 294 km west of Kampala and has a bed capacity of 333. The hospital operates an HIV clinic that runs from Monday to Friday, providing HIV care package services on an outpatient basis. The clinic serves approximately 100 patients per day and is staffed with doctors, nurses, and counselors responsible for its daily operations.

Study Population
All individuals living with HIV who attended the HIV clinic at Fort Portal Regional Referral Hospital during the study period and met the sampling and eligibility criteria were included in the study.
Inclusion Criteria
The study included HIV patients who were 18 years and older.
Exclusion Criteria
Patients who had been diagnosed with depression by a healthcare worker before being diagnosed with HIV were excluded from the study, as this could have confounded our results.
Sample Size
We calculated the sample size using the [27] formula:

n = Z1-α/2^2 * p(1-p) / e^2

Where:
- n = estimated minimum sample size required
- p = proportion of the characteristic in a sample
- Z1-α/2 = 1.96 (for a 95% confidence interval)
- e = margin of error set at 5%

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Using the findings of Rezaei et al. (2019), who reported the prevalence of depression among PLWH in Uganda in 2017 to be 28.5%, we calculated:

n = (1.96)^2 * 0.285 * (1-0.285) / (0.05)^2

n = 314

Adding 10% to account for potential participant dropouts, the total required sample size was 345 participants.

Sampling Technique

We employed consecutive recruitment, sampling every 5th client who visited the clinic, and enrolling 20 patients per day during data collection. Data collection took place on all Mondays, Wednesdays, and Fridays over a 6-week study period. Selecting 3 days a week allowed for flexibility to accommodate other coursework and active participation in patient interviews.

Participant Recruitment and Study Procedure

Patients attending the HIV Clinic were assessed for eligibility. If they met the eligibility criteria and agreed to participate after receiving a detailed explanation of the study's purpose and procedures, they were asked to provide their consent. Participants completed a questionnaire (as shown in Appendix III), administered by the principal investigator with the assistance of study assistants. Information was recorded in the questionnaire based on the participant's responses.

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│         FRRH during the study period     │
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│ administered to│     │ depressed patients│    │              │
│    patient     │     │ to psychiatry and │    └──────────────┘
└────────────────┘     │ Analysis of data │
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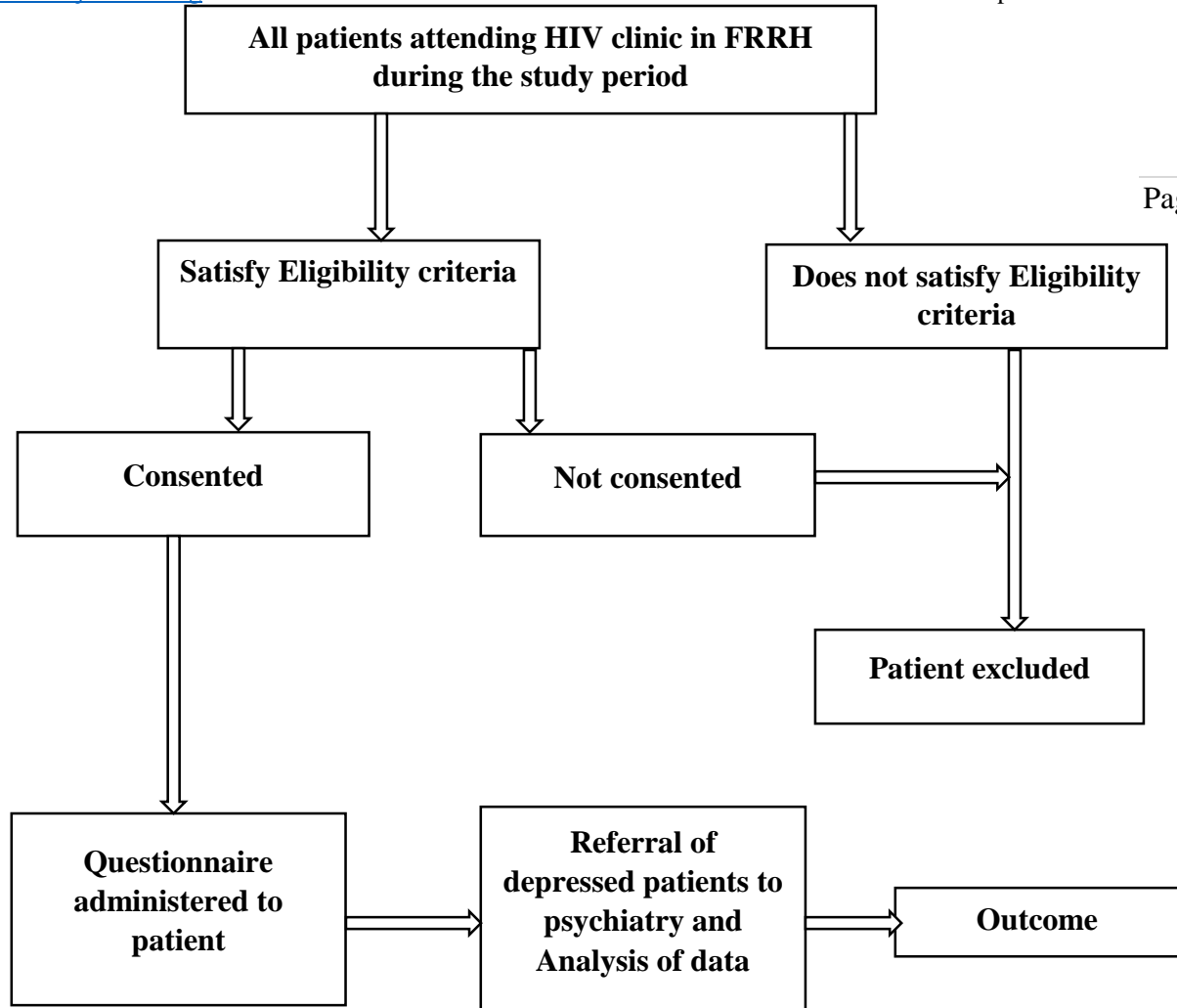
Fig: 1
Figure showing the process of sampling, data collection and analysis

Study variables

The primary outcome variable was the prevalence of depression in People Living with HIV (PLWH). The secondary outcome variable was the severity of depression. Independent variables included: age, sex, employment, marital status, education level, and religion.

Data Collection Tools and Instruments

The questionnaire was utilized to collect social demographic and clinical information, along with other relevant details such as age, sex, employment status, marital status, education level, and religion, as shown in Appendix III. The Beck Depression Inventory-1 (BDI-1), which was previously used in Mbarara by Namagga et al. and has been validated [22], was employed for depression screening and determining its severity.

Data Collection Methods

Information pertinent to the study was gathered via an interview-administered questionnaire. The Beck Depression Inventory-1 (BDI-1) [22] was employed for diagnosing depression and assessing its severity. Patients

identified with depression according to this assessment tool were referred to the psychiatry department for a comprehensive evaluation and management.

Data Processing and Analysis

Summarized data was analyzed using the Statistical Package for the Social Sciences (SPSS Inc., Chicago, USA, version 22.0 for Windows). Continuous variables, such as age, CD4, and Viral Load, were presented as the mean ± standard deviation. Categorical variables, including sex, marital status, social support, self-esteem, employment, education level, and substance use (Smoking, Alcohol intake, and drug use), were expressed as frequencies.

To determine the prevalence of depression among people living with HIV attending the Fort Portal Regional Referral Hospital HIV clinic, percentages were computed and presented in a pie chart. Severity patterns of depression, as determined by the Beck Depression Inventory-1 (BDI-1) [22] were reported as percentages for each category and presented in a pie chart as well. Factors associated with depression among people living with HIV attending the Fort Portal Regional Referral Hospital HIV clinic were analyzed using multivariate logistic analysis and linear regression. Factors affecting the occurrence of severe depression were also determined. A probability value of ≤0.05 ($P \leq 0.05$) was considered significant.

Data Management

Data collection forms used patient codes instead of names and were accessible only to investigators. Hard copy records were securely stored in a locked cabinet, and six months following the completion of the study, they would be destroyed. Electronic records were safeguarded in a password-protected file on the investigator's computer. Upon study completion, they were archived on a Digital Versatile Disc (DVD), which was to be submitted to the KIU registry. In the event that the investigator needed access, they could request it from the KIU registry management.

RESULTS

Prevalence

The study recruited 345 participants, and of these, 119 (34.5%) were found to have depression, using the Beck Depression Inventory as a screening tool and DSM V as a diagnostic tool. Therefore, the prevalence was found to be at 34.5%.

Table 1: Severity patterns

Severity	Frequency
Minimal depression	86 (72%)
Mild depression	18
Moderate depression	12
Severe depression	3
TOTAL	119

Factors Associated With Depression
Demographic Factors

The study population comprised of 345 participants, with 193 females (56%) and 152 males (44%). Those found to have depression were a total of 119, of whom 74 were female (62%) and 45 were males (38%)
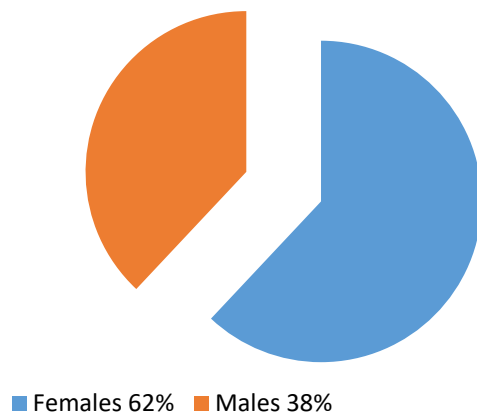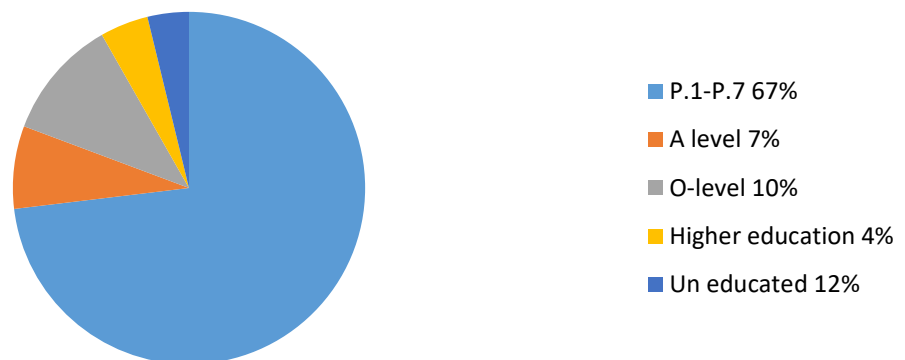
Table 2: Age distribution

Age	Frequency
18-27	17
28-37	34
38-47	52
Above 47	16
Total	119

Table 3: Marital status

Marital status	Frequency
Single	43
Married	28
Separated	34
Divorced	0
Widowed	14
TOTAL	119

Figure 2:Gender distribution

■ Females 62% ■ Males 38%

Figure 3: Education level

■ P.1-P.7 67%
■ A level 7%
■ O-level 10%
■ Higher education 4%
■ Un educated 12%

Figure 4: W.H.O clinical stage
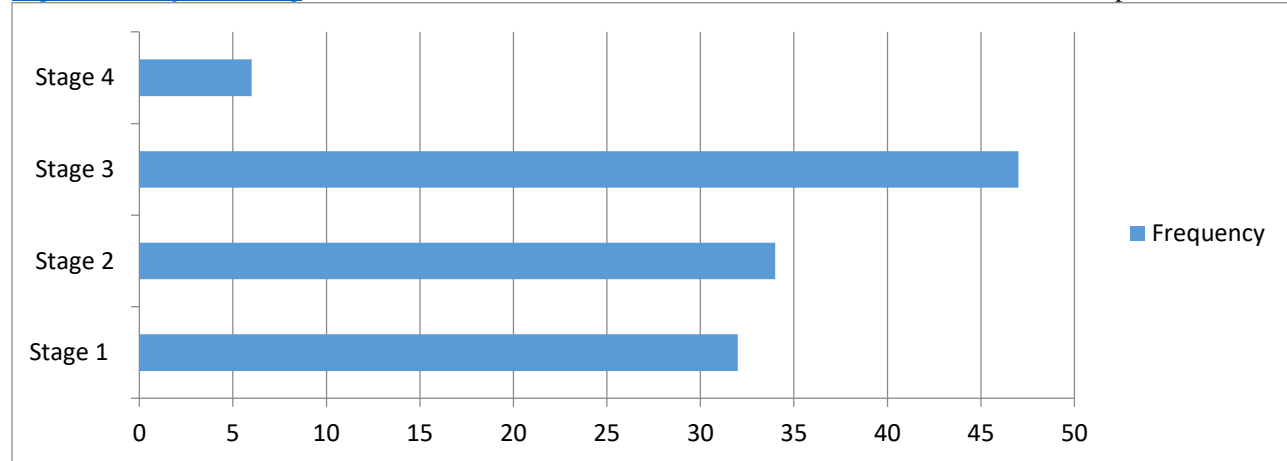
Biological factors
W.H.O clinical stage (Figure 3 above)
Table 4: Anti-retroviral therapy

ART status	Frequency
Not on ART	43
Poor adherence	59
Good adherence	17
TOTAL	119

Psychosocial factors
Table 5: Stigma

Stigma Experience	Frequency
Has ever experienced stigma	115
Has never experienced stigma	4
Total	119

Table 6: Negative life events in the past 1 month

Negative Life Events Experience	Frequency
Has experienced a negative life event in the past month	88
Has Not experienced a negative life event in the past month	31
TOTAL	119

Table 7: Economic status

Monthly income (Ugshs.)	Frequency
<100,000	37
100,100-300,000	41
300,100-500,000	25
500,100-1,000,000	13
>1,000,000	3
TOTAL	119

DISCUSSION

Prevalence of Depression among People Living with HIV Attending Fort Portal Regional Referral Hospital HIV Clinic

The study found that the prevalence of depression among people living with HIV attending the Fort Portal Regional Referral Hospital HIV clinic was 34.5%. This prevalence aligns with prior studies conducted by [28] (22%), [29] (36%), [30] (39.6%), and a study that assessed PLWH in Uganda, Kenya, and Tanzania, reporting a depression prevalence of 25% [31]. In Uganda [29], reported a prevalence of 28.5%, and [32], found a prevalence of 34%. However, the prevalence identified in this study is slightly higher than in many previous studies. This disparity may be attributed to variations in sample size, the level of psychosocial care at the facility and individual levels, study locations, differences in life experiences, and the institutional quality of HIV services. High-quality HIV care and counseling services can reduce depression rates. Additionally, psychosocial support at the facility and personalized support for pregnant women may be instrumental in preventing puerperal sepsis. It is worth noting that the prevalence could have been even higher, but due to the low economic status and educational levels of many individuals, they often refrain from seeking healthcare, leading them to suffer from depressive disorders within their communities.

Severity Patterns

The study revealed that among participants with depression, minimal depression was the most common, accounting for 72%, while severe depression had the lowest frequency, at only 2.5%. This observation can be attributed to the likelihood that patients experiencing moderate to severe depression symptoms are more likely to seek treatment at the mental health unit rather than at the HIV clinic.

Factors Associated with Depression among Participants

The study indicated that stigma, low socio-economic status, and a lack of psychosocial support were strongly associated with depression in individuals with HIV, consistent with findings by [33] and [22]. This strong association can be attributed to the profound psychological impact of these factors, resulting in neurotransmitter imbalances that lead to depression. Other factors significantly increasing the likelihood of depression in this study included biological factors such as female gender, poor adherence to antiretroviral therapy, W.H.O. clinical stages 3 and 4, marital status (being single, separated, or widowed), and old age. Additionally, psychosocial factors such as stigma, low education levels, and low-income status played a significant role. Protective factors identified in this study included good adherence to antiretroviral therapy and being married. These predisposing and protective factors align with studies conducted by [34], [35], [26].

CONCLUSION

The prevalence of depression among people living with HIV attending Fort Portal Regional Referral Hospital HIV clinic was high, at 34.5%. The severity patterns of depression among these patients were mostly minimal depression at 74%, mild depression at 17%, moderate depression at 8%, with the least being severe depression at 1%. The strongest factors predisposing to depression were stigma and low economic status, while the strongest protective factors were adherence to antiretroviral therapy and family-social support.

RECOMMENDATIONS

People living with HIV should be encouraged to access regular counseling services and ensure good adherence to antiretroviral therapy to prevent depression and disease progression. Communities should be sensitized to avoid stigmatizing people living with HIV and to provide sufficient psychosocial support. The Ministry of Health, through healthcare providers, should offer health education to patients, caretakers, and communities to highlight the importance of mental health and preventive measures against depressive disorders. Additionally, further studies on this condition should be promoted through funding and the development of mental health education programs.

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