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Counselling and depressive symptoms in older adults with HIV/AIDS in mbarara, Uganda

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Abstract

Background Depression is a mood disorder characterized by persistent low mood, loss of interest, hopelessness, sleep disturbances, difficulty concentrating, and low self-esteem. Among people living with HIV (PLWH), depression is linked to poor psychological and medical outcomes, including lower quality of life, higher viral load, and increased mortality risk. Various psychotherapy methods, such as cognitive behavioral therapy (CBT), interpersonal psychotherapy, group counselling, and rational emotive behavior therapy (REBT), have been used to treat depression. Counselling, an interpersonal process between a client and a counselor, has been shown to reduce stress, anxiety, and hopelessness among PLWH. This study assessed the role of counselling on reducing depressive symptoms in older adults with HIV/AIDS in Mbarara, Uganda.

Methods We recruited 265 older adults (mean age 64.2 ± 5.1 years; 150 women, 115 men) receiving HIV/AIDS services at four care centers. The Patient Health Questionnaire assessed depression levels, while additional questionnaires evaluated the frequency and perceived benefits of counselling. Reported benefits included improved self-esteem, better illness management, reduced stigma, increased medication adherence, and financial empowerment. Logistic regression was used to analyze the relationship between counselling and depression, with a significance level set at 5%. We used stepwise logistic regression to select the final model, with a p-value threshold of 0.05 for variable inclusion and p-value of 0.10 for variable retention.

Findings Most participants (216; 83.4%) reported that counselling helped them cope with their illness, reducing their likelihood of depression. Factors associated with counselling and depression included lack of home visits (AOR = 2.54, 95% CI 1.57–13.07, $p = 0.019$) and infrequent counselor interactions (AOR = 1.24, 95% CI 1.09–3.84, $p = 0.014$).

Conclusion Regular home visits and counselling are associated with significant reductions in depressive symptoms among older adults living with HIV/AIDS. Incorporating home-based counselling services and regular home visits can enhance the well-being of this population.

Keywords HIV/AIDS, Older adults, Depression, Counselling, Uganda

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Introduction

A consistently low mood, loss of interest in enjoyable activities, hopelessness, sleep disturbances, difficulty concentrating, feelings of failure, worthlessness, self-blame, and low self-esteem are all hallmarks of depression [1, 2]. Depression is one of the most common yet least recognized psychological issues among people living with HIV (PLWH), particularly those aged 55 or older [3]. It negatively impacts their quality of life, adherence to therapy, and treatment outcomes [4, 5]. Depression in PLWH is a serious public health concern due to its association with worse psychological and medical outcomes. These include a higher risk of mortality, elevated viral load, and lower perceived quality of life [6]. Untreated depression in PLWH is also linked to poorer daily functioning and increased cognitive symptoms compared to those without depression [7].

A bidirectional relationship exists between depression and HIV. On one hand, depression accelerates disease progression in people with HIV/AIDS [8]. On the other hand, HIV itself acts as a significant psychological stressor, contributing to mental distress and the development of mental disorders [9].

The Ugandan government recognizes that older PLWH experience depression, though challenges remain, particularly in treatment delivery [10, 11]. Unlike in many high-income countries, behavioral therapy for depression has not been widely documented in the study region. However, some interventions, such as group and individual counselling - have been implemented to address depression [12].

Various psychotherapeutic approaches have been used to treat depression in older adults. These include cognitive behavioral therapy (CBT), interpersonal psychotherapy, group interpersonal psychotherapy, friendship bench intervention, creative play, religious rational emotive behavior therapy (RREBT), high-intensity psychotherapy, cognitive behavioral coaching, and rational emotive behavior interventions [13–17].

A study by Amiya and colleagues in Nepal reported that family support plays a crucial role in mitigating depression and suicidality among PLWH aged 34–60 years [18]. They suggest that integrating family counselling and support services into HIV care programs could improve mental health, overall well-being, and treatment outcomes for PLWH [18].

Globally, the number of older PLWH is rising, with a nearly 17% increase over the past decade [19]. In sub-Saharan Africa (SSA), this population is expected to quadruple by 2040 [20]. Studies show that older adults experience higher rates of HIV-related morbidity and mortality than younger adults [21]. They also face stigma, discrimination, neglect, and stress [22]. These findings highlight the need for targeted interventions to address

depression and other mental health challenges in older PLWH, improving their overall well-being and quality of life.

HIV/AIDS is closely linked to depression due to the side effects of antiretroviral therapy (ARVs) and the chronic nature of the disease [23]. Symptoms such as sleep disturbances, negative mood, poor concentration, and low self-esteem are common [23]. Left untreated, depression can lead to suicidal thoughts, attempts, and even death.

By encouraging clients to focus on areas of their lives where they are functioning well, reducing attention to pathology and stigma, and ultimately empowering them to focus on areas of their lives that are under their control, counselling has been shown in previous studies to reduce depression and suicidal ideation [18, 24–28]. Additionally, counselling lowers stigma [29], enhances medication adherence [30, 31], boosts self-esteem [32], and assists HIV patients in adjusting to life with HIV/AIDS [33]. Nevertheless, no prior research has been carried out in Uganda. The purpose of this study was to evaluate the impact of counselling on lowering depressed symptoms in older adults with HIV/AIDS who are seeking care at specific medical facilities in Mbarara, south-west Uganda. Therefore, the study aimed to assess the role of counselling in reducing depressive symptoms among older persons living with HIV/AIDS in Mbarara City.

Theoretical framework

The Stress-Buffering Model [34] provides a robust theoretical foundation for understanding the relationship between counselling and depressive symptoms in this study. This model posits that social support mitigates the adverse psychological effects of stressors by enhancing coping mechanisms, fostering resilience, and reducing perceived isolation. For older adults living with HIV/AIDS, stressors such as stigma, chronic illness management, and social isolation exacerbate depression. As a form of structured social support, counselling may buffer these stressors by providing emotional validation, practical problem-solving strategies, and a sense of empowerment. Specifically, frequent counselor interactions and home visits-key variables in this study, align with the model's emphasis on consistent, accessible support to counteract stress. By framing counselling as a buffering agent, the model elucidates how targeted psychosocial interventions can disrupt the pathway between HIV-related stressors and depressive outcomes, thereby justifying the hypotheses linking counselling frequency, home-based engagement, and reduced depression severity.

Significance of the findings

The Ugandan government encourages government and non-governmental organizations to hire counselors to address the psychosocial issues of its patients. But occasionally, there aren't enough counselors on staff, and some of them don't sufficiently address the patients' psychosocial needs. Government-employed health professionals mostly address patients' physical issues, ignoring their psychological ones.

Depression accounts for an increasing global burden of illness among adults living with HIV/AIDS. Failing to identify the symptoms of depression widens the knowledge gap for the increasing burden of the disease. These study findings are likely close the gap by contributing to the existing knowledge on the probable factors associated with depression among older persons living with HIV/AIDS. This will further contribute to towards appropriate assessment, diagnosis and treatment of depression and improve treatment outcomes among older persons living with HIV/AIDS in southwestern Uganda. The study findings may also influence health policy decisions for appropriate care for older people with HIV/AIDS and associated mental health problems. Patients, caregivers, clinical teams, community members will all benefit from the study.

The study is likely to be useful to family members of older persons with HIV/AIDS. It will help them to understand the causes of depression, how it can be prevented, and how depressed patients can be helped. The study findings will most likely help managers of the study sites on improvement of service delivery, especially integrating home-based care into their routine care of patients with HIV/AIDS.

Methods

Research design

265 older people 60 years of age and over who were living with HIV/AIDS and receiving medical care at certain medical facilities in Mbarara, southwest Uganda, participated in this cross-sectional study. A cross-sectional research design involves collecting data from a population or sample at a single point in time [35].

Study setting

The study was carried out in Mbarara City at the Nyakayojo and Kakoba H/C IIIs, Mbarara City Council H/C IV, and the Mbarara branch of The AIDS Support Organization (TASO). They are one of the medical facilities in the city with the greatest number of HIV patients and offer HIV/AIDS care services. According to 2022 clinical records, TASO Mbarara and Mbarara City Council H/C IV Nyakayojo health centre III and Kakoba health centre III, the 4 combined Health facilities have a combined total of 603 clients accessing HIV/AIDS aged 60 years

[36]. For instance, Mbarara City Council HC IV=156, Nyakayojo Health Center=11, Kakoba Health Center=10, and TASO Mbarara=426. The aforementioned health centers provide medical care, family care, and counselling to senior citizens. The study took a period of six months, including data collection preparing the required paper work, data analysis and presentation of findings to the relevant authorities.

Study population

The study population consisted of older adults (male and female) with HIV/AIDS who were 60 years of age or older and seeking medical care in Mbarara City.

Criteria for selection

Criteria for inclusion

For a duration of four months, we recruited older adults with HIV/AIDS who were 60 years of age or older and receiving care at TASO Mbarara, Mbarara City Council H/C IV, Nyakayojo, and Kakoba H/C IIIs.

Criteria for exclusion

The study population did not include people with serious cognitive impairments or those who were critically ill.

Sampling and sample size

The Yamane [37] formula of sample size determination, which reads as follows, was used to calculate the sample size:

$$n = \frac{N}{1 + N(e)^2}$$

Where e is the marginal significance level at 0.05, N is the entire population, and n is the sample size. When computed $n = 241$ participants. 10% marginal error was added to make a sample size of 265 participants. Based on the number of possible participants per institution, the sample was divided as follows: TASO Mbarara, Mbarara Municipal Council Health Center IV, Nyakayojo HC III, and Kakoba Health Center III each had 185, 70, 5, and 5 participants, respectively. The participants were enlisted one after the other [38]. The effect size for the power calculation was informed by prior studies on counselling interventions in similar populations, which reported an odds ratio (OR) of ≥ 2.0 for the association between counselling frequency and reduced depression [17, 24]. Using G*Power 3.1, a post-hoc power analysis was conducted for logistic regression with a two-tailed test, $\alpha = 0.05$, and a sample size of 265. The analysis assumed a medium effect size (Cohen's $f^2 = 0.15$), consistent with psychosocial intervention studies in PLWH [42]. This yielded a power of 87%, which exceeds the conventional 80% threshold, ensuring sufficient capacity to detect clinically

meaningful associations. The rationale for accepting 87% power was its alignment with resource constraints and feasibility, while maintaining robustness against Type II errors.

Purposive sampling was used to select the health facilities because they had already been identified and selected for the study. They were selected because they have the highest number of people living with HIV/AIDS in Mbarara City. However, stratified sampling was used by dividing health units into different strata i.e. government Health centres and NGOs and in each stratum, appropriate number of patients was selected according to the total population. This was done to enable balanced coverage of the targeted respondents. There was some selection bias since the health facilities did not have equal numbers of clients but this was minimized by ensuring that appropriate proportion of respondents were selected from each health facility.

Within each stratum, participants were selected proportionally based on the total number of clients at each facility. However, patients were enrolled consecutively (one after another) as they accessed services, rather than through random selection. This sequential enrollment method was likely chosen for practicality, ensuring the target sample size per stratum was met.

Data collection procedure

The PHQ-9 and structured questionnaires were used to gather information on depression and counselling among older adults living with HIV in Mbarara, southwest Uganda. The clinical records of the four medical institutions, which included demographic data, were used by the facility staff to identify possible research participants. The responders were given informed consent forms to read and, if they had any questions, to ask. Consent forms and surveys were translated into Runyankore for illiterate respondents. Each customer who signed the consent form and agreed to participate in the study was assigned a unique identification number so that they could be easily identified when the data was being collected [38].

Study tools

Questionnaire

A questionnaire was developed by the principal investigator and administered by trained Research Assistants to respondents. The questionnaire was made in English but was also translated in the local language—Runyankore. All relevant data was collected using the instruments mentioned above. A well-structured Questionnaire was used for demographic characteristics and determined associated factors for depression like how often one seeks counselling services, pill burden, ART adherence, family support, having a drug companion, stigma and discrimination, presence of HIV comorbidities among others.

Patient health questionnaire (PHQ-9)

Uganda has validated and implemented the PHQ-9 [39]. HIV-positive individuals in Uganda have previously used it [40, 41]. The cut-off values for the PHQ-9 are as follows: 1–4 for little depression, 5–9 for mild depression, and 10–14 for major depression. moderately severe depression in 15–19 and severe depression in 20–27. When a person scores 10 or higher, depression is diagnosed. The frequency with which older people spoke with their counselors was used to measure counselling, while clients' experiences with decreased stigma, beginning income-generating activities, feeling better about themselves, coping with HIV/AIDS, and improving drug adherence were used to gauge the role of counselling [38].

Quality control

Validity of research instruments

Content validity refers to the degree to which the research instrument measures what it should measure [42]. Content Validity Index (C.V.I) by Kothari [42] was used to test validity of research instruments using the formula;

$$C.V.I = n/N$$
$$C.V.I = \frac{\text{Number of items rated relevant}}{\text{Total number of items in the questionnaire}}$$

The obtained CVI was 0.92 which was greater than 0.7 hence the tools were considered valid to yield results for the study.

The study operationalized counselling using single-item, researcher-developed measures: frequency of interaction (e.g., “How often do you talk to your counsellor?”), home visits (yes/no), family involvement (yes/no), and perceived benefits (checklist of outcomes like reduced stigma). No validated scales were used for counselling dimensions, though content validity (CVI = 0.92).

Reliability of research instruments

The reliability of the instruments was tested using Cronbach's Alpha, where the Researcher entered the data of the total number of items in the questionnaire into SPSS program and was able to obtain proper values for reliability analysis. All alpha (α) coefficient values found to be above 0.81 (81%); that is $\alpha > 0.7$ were sufficient enough for the tools/instruments to be regarded reliable according to Amin [43]. While depression was assessed via the validated PHQ-9, counselling variables relied on non-standardized items, limiting psychometric rigor and generalizability.

Statistical analysis

Using Stata version 17, continuous data were summarized using means and standard deviations, and categorical variables were summarized using percentages and

frequencies. Chi-square tests were used to identify differences between depression and independent variables. Binary logistic regression examined the relationship between counselling factors and depression, with a significance level of $p \leq 0.05$. Variables significant at $p < 0.1$ in bivariate analysis were considered for multivariable analysis [38].

Model selection process Stepwise logistic regression was employed to select the final model, with a p-value threshold of 0.05 for variable inclusion and 0.10 for retention. While stepwise methods carry risks of overfitting and exclusion of theoretically relevant variables, they were justified here due to the exploratory nature of the study and the need to identify key predictors in a resource-constrained setting with limited prior local evidence. To mitigate these limitations, variable selection was guided not only by statistical significance but also by theoretical relevance such as frequency of counselling and home visits were prioritized based on literature linking social support and depression in PLWH.

Multicollinearity assessment Variance Inflation Factor (VIF) values were calculated for all predictors in the final model. All VIFs were < 2.0 , indicating no significant multicollinearity (VIF > 5 is typically considered problematic).

Model fit The Hosmer-Lemeshow test confirmed adequate fit ($\chi^2 = 6.38$, $p = 0.2402$). The final model explained 26% of variance (Pseudo $R^2 = 0.26$), suggesting additional unmeasured factors like socioeconomic status, viral load, may influence depression.

Assumptions

Individual counselling was provided to all clients who came at the facilities.

All clients were adhering well on the drugs.

All clients honoured their appointment dates.

Results

Response rate

All the eligible participants were approached and the response rate was 100%, there was no any refusal or drop out.

Participant characteristics

The final analysis included a total of 265 older adults with HIV/AIDS. There were 150 female participants, or 56.6% of the total. 7.55% of $n = 8$ were married and experiencing depressive symptoms. As indicated in Table 1 below, about 7% of unemployed people experienced depressive symptoms. The lack of significance may reflect the homogeneity of the sample, like similar socioeconomic challenges across participants or the protective role of counselling in mitigating demographic disparities.

Usefulness of counselling to older persons living with HIV/AIDS

Results in Table 2 show that 83.4% found counselling helpful, mainly aiding coping with disease progress (34.4%), improving self-esteem (33.6%), reducing stigma (9.6%), start income generating activities (11.2%), and improve on drug adherence (11.2%).

Older adults who (i) rarely spoke to their counselors (8.25% vs. 6.9%, $\chi^2 = 4.74$, $p = 0.029$) and (ii) had never received a visit from their counselor at home (9.05% vs.

Table 1 Participants' characteristics

Variable	n (%)	No depression (n = 243, 91.7%)	Depression (n = 22, 8.3%)	χ^2 (p-value)
Age (mean $\pm$ SD)	64.2 $\pm$ 5.06	64.1 $\pm$ 4.98	65.5 $\pm$ 5.91	24.7 (0.312)
Gender				
Male	115 (43.40)	107 (93.04)	8 (6.96)	0.48 (0.487)
Female	150 (56.60)	136 (90.67)	14 (9.33)	
Marital status				
Currently married	106 (40.00)	98 (92.45)	8 (7.55)	0.132 (0.716)
Not currently married	159 (60.00)	145 (91.19)	14 (8.81)	
Employed				
Yes	121 (45.66)	109 (90.08)	12 (9.92)	0.76 (0.382)
No	144 (54.34)	134 (93.06)	10 (6.94)	
Nature of your employment				
Self-employed	140 (87.50)	130 (92.86)	10 (7.14)	0.21 (0.650)
Employed by others	20 (12.50)	18 (90.00)	2 (10.00)	
Average monthly income				
less than or equal to Ugx 100,000	181 (70.70)	164 (90.61)	17 (9.39)	1.16 (0.281)
100,001 and above	75 (29.30)	71 (94.67)	4 (5.33)	

Values presented as mean $\pm$ SD or n (%)

Table 2 Usefulness of counselling to older persons living with HIV/AIDS ($n = 265$)

Variable	<i>n</i> (%)
Was counselling helpful	
Yes	216(83.40)
No	43(16.60)
If Yes how (Multiple responses)	
Reduced stigma	60(9.6)
Start income-generating activity	70(11.2)
Improve self-esteem	210(33.6)
Cope with the situation/disease	215(34.4)
Improve on drug adherence	70(11.2)

Multiple responses allowed; percentages sum to > 100%

Relationship between Counselling and Depression

3.77%, $\chi^2 = 7.08$, $p = 0.036$) had significantly higher levels of depression (at a cut-off of 10); (Table 3).

Bivariate logistic regression showed that depression was significantly correlated with the frequency and number of times clients spoke to their counselors (OR = 1.21; 95%CI (1.19–7.13); patients who did not receive home visits from their counselors were 2.32 times more likely to experience depression than those who did; patients

who spoke to their counselors infrequently were 1.21 times more likely to experience depression than those who did so frequently and those whose counselors visited them at home (OR = 2.32; 95%CI (1.59–9.11)).

According to the adjusted analysis, older adults with HIV/AIDS who spoke to their counselors infrequently had a 1.24-fold higher chance of developing depression than those who spoke to them frequently or fairly frequently (AOR = 1.24, 95%CI 1.09–3.84), $p = 0.014$. Additionally, elder patients who did not receive home visits from their counselors had a roughly three-fold higher risk of developing depression than those who did (AOR = 2.54, 95%CI 1.57–13.07), $p = 0.019$. Details are shown below in Table 4.

Discussion

The main objective of this study was to determine how counselling would help older patients with HIV/AIDS and depression seeking services in Mbarara City, south-western Uganda. The results showed that counselling helped patients deal with the illness, reduced stigma, increased treatment adherence, and boosted their self-esteem. Older adults who rarely spoke to their counselors

Table 3 Depression-related counselling factor distribution ($n = 265$)

Variable	<i>n</i> (%)	No depression ($n = 243$, 91.7%)	Depression ($n = 22$, 8.3%)	χ^2 (<i>p</i> -value)
Age (mean $\pm$ SD)	64.2 $\pm$ 5.06	64.1 $\pm$ 4.98	65.5 $\pm$ 5.91	24.7 (0.312)
Gender				
Male	115 (43.40)	107 (93.04)	8 (6.96)	0.48 (0.487)
Female	150 (56.60)	136 (90.67)	14 (9.33)	
Marital status				
Married	106 (40.00)	98 (92.45)	8 (7.55)	0.90 (0.826)
Single	6 (2.26)	6 (100)	0	
Widow	126 (47.55)	114 (90.48)	12 (9.52)	
Divorced/separated	27 (10.19)	25 (92.59)	2 (7.41)	
Employed				
Yes	121 (45.66)	109 (90.08)	12 (9.92)	0.76 (0.382)
No	144 (54.34)	134 (93.06)	10 (6.94)	
How often do you talk to your counsellor?				
Often/ Quite often	58(21.97)	93.10(93.10)	4(6.90)	4.74(0.029)
Rarely	206(78.03)	189(91.75)	17(8.25)	
Has he/she been helpful				
Yes	216 (83.40)	201 (93.06)	15 (6.94)	2.36(0.124)
No	43 (16.60)	37 (86.05)	6 (13.95)	
Has your counsellor ever counselled you in presence of your family members?				
Yes	49 (18.92)	47 (95.92)	2(4.08)	1.32(0.251)
No	210 (81.08)	191 (90.95)	19(9.05)	
Has he/she ever visited you at home?				
Yes	53 (20.15)	51 (96.23)	2 (3.77)	7.08(0.036)
No	210 (79.85)	191 (90.95)	19 (9.05)	
Do you also seek spiritual counselling?				
Yes	183 (69.85)	171 (93.44)	12 (6.56)	1.74(0.186)
No	79 (30.15)	70 (88.61)	9 (11.39)	

Table 4 Bivariate and multivariate logistic regression analysis of counselling factors associated with depression

Variable	Depression		p-value	Adjusted odds ratio (95% confidence interval)		p-value
	Unadjusted odds ratio (95% confidence interval)					
Age	1.05(0.97–1.13)		0.198			
Gender						
Male	1					
Female	1.37 (0.56–3.40)		0.488			
Marital status						
Married	1					
Not married	0.84 (0.34–2.09)		0.716			
Employed						
Yes	1					
No	0.67 (0.28–1.63)		0.385			
How often do you talk to your counselor?						
Often/ Quite often	1			1		
Rarely	1.21 (1.19–7.13)		0.038	1.24(1.09–3.84)		0.014
Has he/she been helpful?						
Yes	1					
No	0.54 (0.17–1.67)		0.288			
Has your counselor ever counseled you in the presence of your family members?						
Yes	1					
No	0.56 (0.11–2.87)		0.487			
Has he/she ever visited you at home?						
Yes	1			1		
No	2.32 (1.59–9.11)		0.016	2.54 (1.57–13.07)		0.019
Do you also seek spiritual counselling?						
Yes	1					
No	2.46 (0.93–6.48)		0.068			

and those who had never had a home visit from their counselors had considerably higher rates of depression compared to those who had visits from the counsellors.

Our findings agreed with those of previous studies. For example, a systematic review and meta-analysis [44] found that reduced depression was experienced by PLWH who had higher levels of social support, which included home visits from healthcare providers. When home visiting is carried out, the counsellor or health worker interacts with the family members and identifies whether home environment is supportive and assesses factors that may contribute to depression and how they can be addressed [44]. Our findings also align with research by Wu and Li (2013) on community-based HIV/AIDS interventions to enhance psychosocial well-being among individuals living with HIV/AIDS. They found that depression was lessened by coping skills counselling.

Our study findings are corroborated by Siyanti et al. [45], who investigated the impact of family psychoeducation, commitment therapy, acceptance therapy, and logotherapy on depression and self-stigma among housewives with HIV/AIDS. In certain medical facilities in Mbarara City, counselling helped older HIV/AIDS patients receiving care for HIV/AIDS feel less stigmatized. This result is consistent with that of [29], who examined how HIV/AIDS stigma affected HIV counselling and testing in a

population with a high HIV/AIDS prevalence in Uganda and found that reduced levels of stigma were linked to higher uptake of HIV/AIDS Counselling and Testing (HCT). The results also showed that among older HIV patients receiving care for HIV/AIDS in a few Mbarara City medical facilities, counselling enhances medication adherence. This result is in line with the findings of [30, 31], who emphasized that medication compliance is a special concern for older adults with HIV/AIDS who receive counselling. In order to maximize success, reduce viral resistance, and improve outcomes, older HIV/AIDS patients' adherence should be closely monitored. Iacob [32] found that therapy can maintain the patient's optimism for a better life and minimizes "harm reduction" to lower the risks of transmission, which supports the conclusion that counselling increased self-esteem.

The significant associations between lack of home visits (AOR = 2.54) and infrequent counselling (AOR = 1.24) with depression underscore actionable strategies for health services. Home visits address barriers like mobility limitations and stigma, enabling tailored psychosocial support and family engagement, critical in low-resource settings. Integrating home-based counselling into HIV/AIDS care through task-shifting such as training community health workers could expand reach, while optimizing contact frequency via telehealth or group sessions

enhances accessibility [46]. Policymakers should prioritize funding for counselor training, transportation, and culturally adapted interventions, potentially partnering with traditional healers. These steps, coupled with routine depression screening, may improve ART adherence, reduce healthcare costs, and mitigate mental health burdens, though resource constraints and sustainability require longitudinal evaluation [47].

Home-based counselling for older adults living with HIV/AIDS can be understood through the lens of person-centered and culturally sensitive care models, which emphasize trust, accessibility, and emotional safety-factors critical for effective mental health support in this population [48, 49]. Person-centered models prioritize individualized care that aligns with patients' unique psychosocial needs, while culturally sensitive approaches ensure interventions respect local beliefs, familial structures, and community norms [50]. For older Ugandan adults, home-based counselling may mitigate barriers such as stigma, mobility limitations, and healthcare access disparities, fostering therapeutic engagement in a familiar environment [51]. This approach aligns with findings from Nakimuli-Mpungu [52], where contextually adapted interventions significantly reduced depression and self-stigma among PLWH.

In Uganda, cultural beliefs and stigma profoundly shape engagement with counselling services. HIV-related stigma remains pervasive, driven by misconceptions about transmission and moral judgments, which often isolate individuals and deter them from seeking formal mental health support [51]. Home visits circumvent stigma by offering privacy and familiarity, while involving family members during sessions resonates with Uganda's collectivist culture, where communal decision-making is valued [48]. These findings suggest that integrating home-based services into national HIV/AIDS care programs, leveraging community health workers (CHWs) or trained peers who understand local dialects and traditions, could enhance accessibility and acceptability.

In certain medical facilities in Mbarara City, counselling assisted older HIV-positive patients getting HIV/AIDS treatment in managing their illness. This result was consistent with Siegel and Schrimshaw [33] who noted that HIV/AIDS counselling can elicit feelings of comfort, provide strength, empowerment, and control, ease the emotional burden of the illness, provide social support and a sense of belonging, provide spiritual support through a personal relationship with God, help preserve health, ease the fear and uncertainty of death, facilitate self-acceptance and reduce self-blame, and provide spiritual support through a personal relationship with God.

The logistic regression model in this study had a Pseudo R^2 of 0.26, indicating that approximately 26% of the variance in depressive symptoms among older adults

living with HIV/AIDS was explained by the included predictors, such as frequency of counselor interactions, home visits. While this value is statistically significant, it suggests that other unmeasured factors such as biological markers like, CD4 count, viral load, comorbid chronic conditions, or broader socio-economic determinants, for example, food insecurity, housing stability may contribute to depression in this population.

Despite this limitation, the identified predictors, such as home visits, frequent counselling remain clinically actionable. The modest variance explanation underscores the complexity of depression etiology in PLWH and aligns with existing literature highlighting multifactorial influences stigma, social isolation, medication side effects [18, 45, 53]. Interventions should adopt a holistic approach, combining psychosocial support with medical care to address unmet needs.

Limitations of the study

The study did not account for potential confounders such as education level, socioeconomic status, or HIV/AIDS disease severity, which may influence both depression and the effectiveness of counselling. Future studies should include these variables in their design and analysis to better isolate the impact of counselling on depressive symptoms.

HIV associated stigma limited opening up by some participants. However, the researcher assured respondents of total confidentiality and created good rapport with them.

The cross-sectional design limits causal inference. While the study identifies correlations between counselling factors like, home visits and depression, it cannot establish temporal relationships. For instance, it remains unclear whether reduced depression stems from counselling or whether individuals with lower depression are more likely to engage in counselling. A longitudinal or randomized controlled trial design would better elucidate causality and track changes in depressive symptoms over time.

Selection bias may have influenced the results. The unequal distribution of participants across health facilities, for instance, 185 from TASO Mbarara vs. 5 from Kakoba HC III, and the use of consecutive enrollment rather than random sampling could skew the sample toward individuals with better access to or engagement with services. This limits generalizability to other settings, particularly rural or under-resourced clinics. Future research should employ stratified random sampling to ensure proportional representation across facilities and demographic subgroups.

Data was gathered during the COVID-19 pandemic lockdown, and due to COVID SOPs including social distancing, we were unable to spend enough time with some

clients. Some patients' lived experiences with HIV/AIDS were not included in the study because they were represented by their caregivers and were not interviewed.

The study did not explicitly account for how cultural beliefs and practices in Mbarara, Uganda may influence perceptions of counselling effectiveness. For instance, preferences for spiritual or communal support systems like traditional healers, family-led interventions) might shape engagement with formal counselling. This cultural nuance could limit the generalizability of findings to other regions or populations with distinct sociocultural contexts.

The reliance on self-reported data introduces the risk of social desirability bias, where participants may have underreported depressive symptoms or overemphasized the benefits of counselling to align with perceived expectations. This bias could inflate the observed associations between counselling and reduced depression. Future studies should incorporate mixed-method approaches, such as triangulating self-reports with clinician assessments or behavioral observations, to mitigate this issue.

Conclusions

Among older people living with HIV/AIDS who are receiving care at specific medical facilities in Mbarara city, southwestern Uganda, the frequency of home visits by counselors to older patients with HIV/AIDS and the rate of communication between counselors and these patients are both substantially correlated with depression. Therapy helps patients to deal with the illness, reduce stigma, increase treatment adherence, and boost their self-esteem. It is also concluded that older adults with HIV/AIDS who spoke to their counselors infrequently had a higher chance of developing depression than those who spoke to them frequently or fairly frequently.

Recommendations

It is recommended that healthcare providers integrate the PHQ-9 or other validated tools into routine HIV/AIDS care visits to systematically screen for depression and track symptom changes over time.

To further reduce the risk of depression, it is recommended to prioritize home visits for high-risk groups such as those with limited mobility, low social support, or prior depressive symptoms and measure outcomes through pre- and post-visit PHQ-9 assessments. These visits should involve collaboration with traditional healers and spiritual leaders to co-deliver counselling, fostering trust and bridging gaps between biomedical and cultural health systems.

Train counselors to involve family members during sessions, leveraging tools like the Family Support Scale to quantify improvements in household dynamics and emotional support, and also in cultural competence,

including strategies to address spiritual concerns or familial dynamics, could further align services with local norms.

Establish peer-led support groups for older PLWH, with biannual evaluations of participation rates and mental health outcomes like depression prevalence, self-efficacy scores.

What is known about this subject already?

Counselling helps older HIV/AIDS patients feel less depressed.

Counselling helps older HIV/AIDS patients feel less stigmatized.

Counselling helps older HIV/AIDS patients take their medications as prescribed.

Counselling helps older HIV/AIDS patients feel better about themselves.

Older HIV/AIDS patients benefit from counselling as they deal with the illness.

What this research adds

There is a substantial correlation between depression and the frequency of home visits by counselors to older patients with HIV/AIDS and the rate of communication between counselors and these patients.

Empirical data demonstrating how counselling helps older adults with HIV/AIDS in Mbarara City experience fewer depression symptoms.

Abbreviations

AIDS	Acquired Immunodeficiency Syndrome
AOR	Adjusted Odds Ratio
ARVs	Anti-Retrovirals
CBT	Cognitive Behavioral Therapy
COVID	Corona Virus Disease
HIV	Human Immunodeficiency Virus
OR	Odds Ratio
PHQ-9	Patient Health Questionnaire
PLWH	People Living with HIV
REBT	Rational Emotive Behavior Therapy
SOPs	Standard Operating Procedures
SSA	Sub-Saharan Africa
TASO	The AIDS Support Organization

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Author contributions

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Data availability

Every piece of information required for this manuscript has been included. The corresponding author can be contacted if any clarifications are required.

Declarations

Ethics approval and consent to participate

This study adhered to the Declaration of Helsinki. It was reviewed and approved by the Mbarara University of Science and Technology research ethics committee (MUSTREC-#16/02–21) and the Uganda National Council for Science and Technology [HS2331ES]. Individuals with severe depression and suicide ideation were sent to the psychiatry department at Mbarara Regional Referral Hospital for further evaluation and treatment [38].

The study participants' written informed consent was obtained by providing them with consent forms. The permission form provided detailed information regarding the study's purpose, voluntary participation, advantages, the ability to withdraw from the study at any time without consequence, dangers, and discomforts. Measures to ensure confidentiality and privacy regarding participants' identity protection and protection of information given were offered on the consent form allowing participants to make informed decisions [38].

Participants' anonymity and privacy were further protected by not exposing their names or identities during the reporting of the research findings [38].

Consent for publication

Not applicable.

Competing interests

The authors declare no competing interests.

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