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Prevalence of Depression and Associated Factors among People Living with HIV in Care and Treatment Clinics in Dar es Salaam, Tanzania

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Abstract

Background

Depression is the most common mental health disorder among HIV patients. It affects between 20–30% of people receiving antiretroviral treatment worldwide. In Tanzania, there is a dearth of studies on depression among people living with HIV.

Aim

This study aimed to assess the prevalence of depression and associated factors among people living with HIV (PLWH) in Care and Treatment Clinics in Dar es Salaam, Tanzania.

Methodology

A cross-sectional descriptive study was conducted among PLWH aged 18 years and above in Care and Treatment Centres in Dar es Salaam. The convenient sampling method was used to select 292 participants. Data related to depression were collected by using Patient Health Questionnaires-version 9 (PHQ-9). Data were cleaned and analysed descriptively by using the computer software IBM SPSS version 21. Univariate and bivariate analyses were conducted to determine the prevalence of depression and associated factors. A *p*-value of < 0.05 was used to ascertain significant relationships between dependent and independent variables.

Results

A total of 292 participants were recruited. The mean participants' age was 38.7 years (*SD* = 9.6). Nearly three-quarters of the participants were females, and 71.6% had lived with HIV between 1 and 5 years. The findings showed that 52.4%, 16.8%, 6.2%, 3.1%, and 0.3% had minimal, mild, moderate, moderately severe, and severe depressive symptoms respectively. Generally, the overall prevalence of depression was 9.6%. About 35% of participants faced difficulties in managing depression. Females were significantly more likely to experience depression compared to males. Other demographic characteristics did not show any association with depression.

Conclusion and Recommendation

Depression is high among PLWH. Mental health services need to be incorporated into the national HIV programs as one of the important interventions in addressing the needs of PLWH in Tanzania.

Keywords: *Prevalence, Depression, People Living with HIV, Care and Treatment Clinic, Dar es Salaam, Tanzania.*

Introduction

The proportion of the population in the world living with depression is estimated to be 322 million which constitutes 4.4% of the global population (1). Depression is a significant contributor to the global burden of disease and affects people in all communities across the world. In a systematic review of epidemiological studies conducted in 2010 across countries and cultures, depressive disorders and dysthymia accounted for about 8.2% and 1.4% of the years lived with disability (YLD) respectively (2). A recent study indicated that depression is associated with most disability-adjusted life years (DALYs) for both sexes, with higher rates in women than all other internalizing disorders, while other disorders such as substance use disorders had higher rates in men (3).

Depression is most common in people with HIV infection and might negatively impact self-care and quality of life among people living with HIV (PLWH) (4). The prevalence of depression among people with HIV infection is high compared to the general population (23). The prevalence of depression among HIV-positive patients in different countries ranges from 8% to 63% (5) – (11). HIV infection, like other long-lasting physical illnesses such as asthma, cancer, and heart diseases, is associated with depression. Unlike other chronic physical illnesses, HIV infection is associated with stigma and discrimination which increases the likelihood of depression (12)–(14). PLWH are susceptible to opportunistic infections which make the management of HIV/AIDS more complicated and hence worsen the depressive symptoms (15).

Depression is associated with a threefold increase in non-adherence to medical treatment recommendations in general (16). Depressed HIV-positive patients who are on medications may fail to adhere to antiretroviral therapy (ART), hence affecting the prognosis of HIV treatment (17), (18). Depression in HIV infection needs more attention due to its associated complications. Depressed people with HIV infection are at amplified risks of suicide compared to those without depression (19), (20). Furthermore, prolonged depression is associated with other medical conditions such as pulmonary diseases (21), and diabetes (22). These co-morbidities worsen the quality of life of PLWH.

Few studies have been done in Tanzania on the prevalence of depression. For instance, a study done in urban Tanzania reported a prevalence of 4.1% for depression in the general population (23). In the past few years, the prevalence of depression among PLWH in rural Tanzania was more than three times higher than that of the general population (24). The prevalence may be even higher in urban areas and big cities. In comparison with other age groups, the prevalence of depression among HIV-positive children and adolescents in Southern Highland in Tanzania was about 26% (25). However, there is limited information

about the prevalence of depression among PLWH who are attending Care and Treatment Centres (CTCs) in urban areas where HIV infection and depression tend to be higher compared to rural areas. Knowing the prevalence of depression among PLWH will inform the health care providers on the magnitude of the problem which will guide resource allocation and management of depression to PLWH in Dar es Salaam and other similar settings. Therefore, this study was carried out to determine the prevalence of depression and its associated factors in people living with HIV attending CTCs in Dar es Salaam, Tanzania.

Materials and Methods

Design

This study used a cross-sectional design in which the prevalence of depression and associated factors among PLWH were assessed. We used this design to obtain and describe the information on depression among PLWH at that particular time that could be used in planning future interventional studies. In addition, the design facilitated the determination of relationships between depression and the personal and social characteristics of participants.

Study Setting

The study was conducted in Ubungo municipality in Dar es Salaam, which is the major commercial seaport city in Tanzania, with an estimated population of more than 5.7 million (26). Within the municipality, all CTCs were included in the study. Ubungo municipality was purposely selected as the setting for the present study because, according to the 2016-17 report, the prevalence of depression was 4.7% which is a bit higher compared to other municipalities in Dar es Salaam (27).

Sampling and Sample Size

Sample size calculation

The sample size was calculated using formula for cross-sectional surveys:

$$n = \frac{Z^2 \times P \times (100-P)}{e^2}$$

Whereby,

n = Minimum required sample size

Z= Standard normal deviate of 1.96 on using 95% confidence interval.

P = Expected proportion of PLWH is 26% obtained in Tanzania (25)

e =Margin of error (5%)

Hence, n= $\frac{1.96^2 \times 26 \times (100-26)}{5^2}$

n=295

Convenient sampling was used to recruit 292 PLWH, aged 18 and above attending CTCs in the Ubungo district in Dar es Salaam. Participants were accessed through a CTC nurse after they had attended the clinic. All CTCs were visited, and all available clients at the time of the visit were asked to voluntarily participate in the present study. Those who consented were enrolled in the study.

Data collection

Data collection tool

The Patient Health Questionnaire version 9 (PHQ-9) was used to collect data. A separate standardized questionnaire to collect socio-demographic and other characteristics of participants was used. For the PHQ-9, the tool is available in the English language and consists of ten questions. Nine out of ten questions are for assessing depression and the last question is for assessing the difficulty in daily living caused by depression assessed in the nine questions. The questionnaire was first translated into Kiswahili, the national language in Tanzania, before data collection. A committee translation approach was used whereby two bilingual translators and two researchers who were also bilingual discussed the meaning of each item in the English-language questionnaire and translated it into the Kiswahili language. This approach places more emphasis on constructing and writing good questions than simply translating the words (28). A pilot study of the translated PHQ-9 was conducted with 29 PLWH as proposed by Perneger (29). The participants in the pilot study were not involved in the actual study. Feedback from the pilot study was used to improve the tool without changing the original meaning of the validated PHQ-9.

Data Collection procedures

To ensure the quality of data collected, a two days training was conducted for two research assistants and one supervisor. These research assistants were trained on the aims of the study, data collection, and logistics of the study. Before the questionnaires were administered, all participants were informed about the purpose of the study. Participants were requested to complete the questionnaires which took an average of 20 minutes and then returned to the researcher/research assistants who were experienced nurses working in CTCs. Every day after fieldwork, the researcher and research assistants held a meeting to

check for completeness of the filled questionnaire. These meetings were important for controlling the quality of information collected.

Data Analysis

Data were entered into the IBM Statistical Package for the Social Sciences (SPSS) database program version 21 for analysis. A data cleaning procedure was conducted to identify missing items in the data set. Demographic characteristics such as marital status, age, sex, years lived with HIV, and education levels were analysed in terms of frequency and percentage. Depression was measured using the nine-item standardized PHQ-9 depressive symptoms scale. It has a total of 27 scores, the scores are categorized as follows; (1–4), mild (5–9), moderate (10–14), moderately severe (15–19), and severe depressive symptoms (19–26). The cut-off point (10) commonly used for considering the presence of depressive symptoms that need clinical attention was used. Therefore, a total score of 10 and higher were considered to indicate the presence of depression. PHQ-9 has a Likert scale which used to score the severity of symptoms. As the symptoms become more severe, difficulty in daily living increases. The score response options are as follows: 0 = not at all, 1 = several days, 2 = more than half the days, and 3 = nearly every day. This is one of the most widely used scales and has been previously used in Tanzania (30), (31), so it is reliable, valid, sensitive, and specific to measure depression (32). In bivariate analysis, the Pearson's Chi-square Test was used to assess the association between independent variables (age, sex, Marital status, education level, and years lived with HIV) and depression, the outcome variable. Statistical significance was considered to exist at $p < 0.05$.

Ethical considerations

The study protocol was reviewed and approved by the Institutional Review Board (IRB) of the Muhimbili University of Health and Allied Sciences (MUHAS) with reference number MUHAS-REC-2-2020-093. Permission to conduct the study was granted by the DMO of the respective district. Participants were informed about the purpose, risk, and benefit of the study. They were also informed that their data will be kept confidential by using code numbers instead of names. Moreover, participants were informed about the right to withdraw from the study at any time they wished to do so. Written informed consent was obtained before questionnaires were administered to each participant.

Results

Demographic Characteristics of the participants

A total of 292 participants were surveyed, the response rate was 99%. Their mean age was 38.7 years (*SD* = 9.6), and nearly three-quarters were females. About one-third, 34.6% of the respondents were aged between 30 to 39 years. More than half (60.1%) had completed primary education, while a high proportion (71.6%) had lived with HIV between 1 and 5 years (Table 1).

Table 1: Demographic characteristics of the study participants (n = 292)

Characteristics	n	%
Sex		
Male	83	28.4
Female	209	71.6
Marital status		
Married	92	31.5
Single	89	30.5
Divorced	55	18.8
Widow/widower	35	12
Co-habiting	21	7.2
Age group (years)		
20–29	58	19.9
30–39	101	34.6
40–49	87	29.8
50–59	46	15.8
Highest educational attainment		
Primary	177	60.6
Secondary	90	30.8
College	17	5.8
University	8	2.7
Time lived with HIV (years)		
1<	0	0
1–5	209	71.6
6–10	62	21.2
11–15	18	6.2
16–20	3	1

Prevalence and severity of depression

Less than a quarter of the participants (n= 62; 21.2%) reported not having any form of depression. More than half of the participants (n=152; 52.4%) reported having minimal depression. The overall prevalence of depression among participants was 9.6%. (Figure 1).

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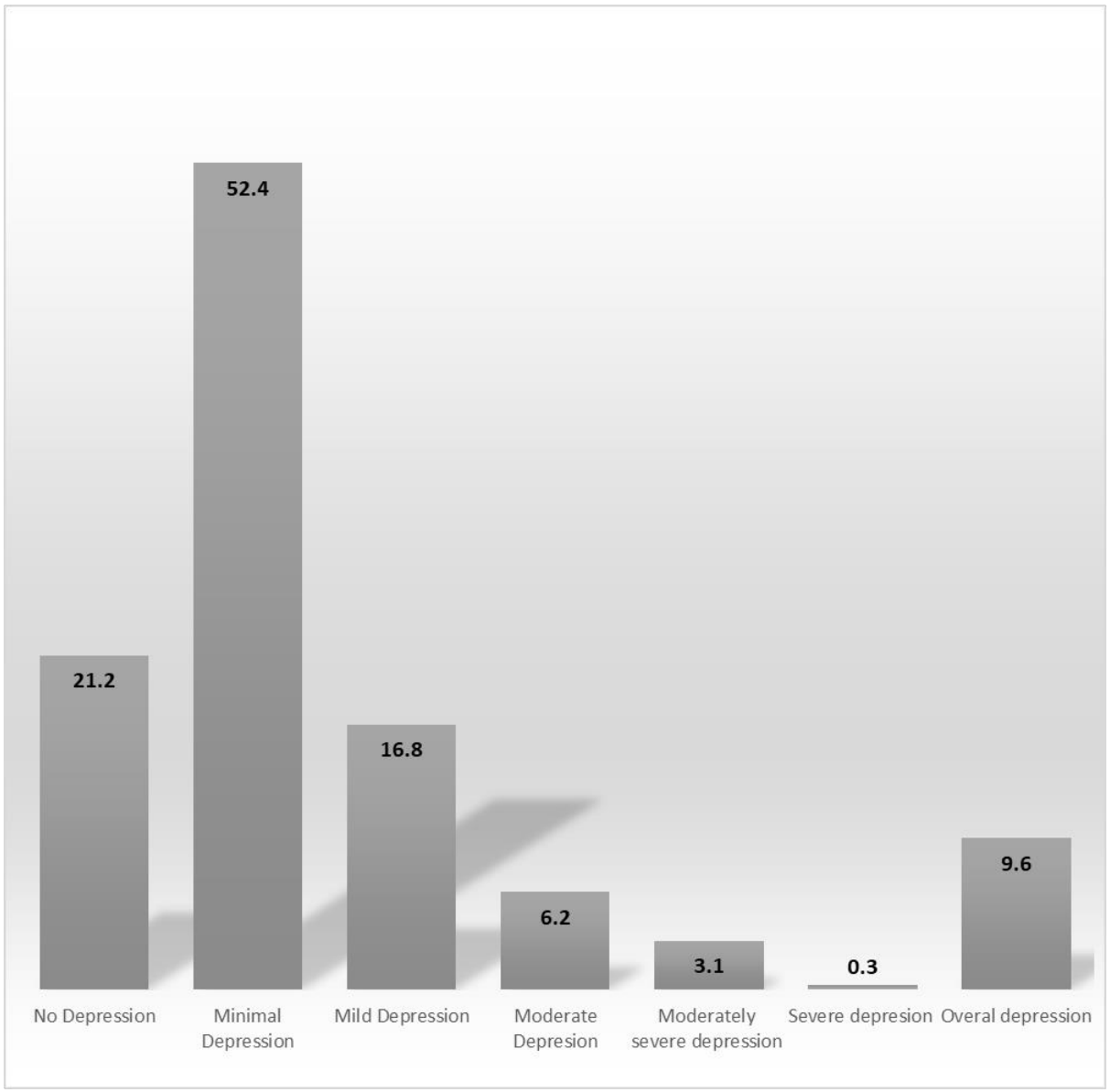

Figure 1. Prevalence of depressive symptoms among people living with HIV

Difficulties related to Depressive symptoms

The majority of participants (n=189; 64.7%) had no difficulties dealing with the symptoms (Figure 2).

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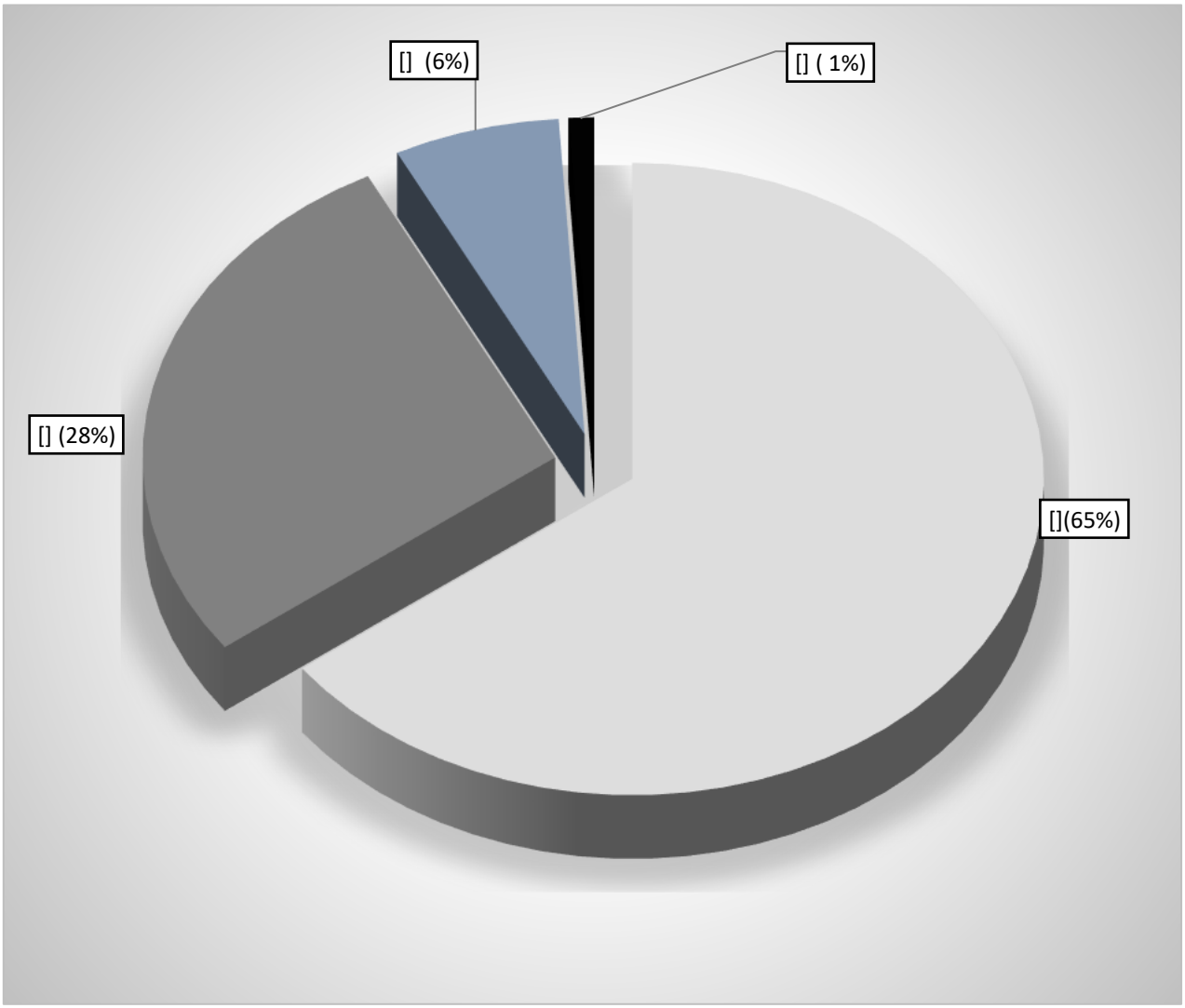

Figure 2. Difficulties related to depressive symptoms

Associations between socio-demographic characteristics and depression among PLWH

Except for gender, no association was found between demographic characteristics and depression. Females who lived with HIV were significantly more likely to end with depression compared to males. (Table 2).

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Table 2: Association between socio-demographic characteristics of participants and depression (n=292)

Characteristics	Depression		*p*-value
	No	Yes	
Age group, years			
20–29 (*n* = 58)	53(91.3%)	5 (8.7%)	
30–39 (*n* = 94)	87(92.6%)	14 (7.4%)	0.857
40–49 (*n* = 92)	81 (88.04%)	11 (11.06%)	
50–59 (*n* = 46)	42 (91.3)	4 (8.7%)	
Highest educational attainment			
Primary school (*n* = 177)	158(89.3%)	19(10.7%)	
Ordinary secondary school (*n* = 90)	83(92.2%)	7(7.8%)	0.671
College (*n* =17)	15(88.2%)	2(11.8%)	
University (*n* =8)	8(100%)	0(0%)	
Time lived with HIV			
1-5 (*n* = 209)	191 (91.4%)	18 (8.6%)	
6-10 (*n* = 62)	54 (87.1%)	8 (12.9%)	0.87
11–15 (*n* =18)	17 (94.4%)	1 (5.6%)	
16–20 (*n* =3)	2 (66.7%)	1 (33.3%)	
Gender			
Male (*n* = 83)	81 (97.5%)	2 (2.5%)	0.009*
Female (*n* = 209)	183 (87.6%)	26 (12.4%)	
Marital status			
Single (*n*=89)	82 (92.1%)	7 (7.9%)	
Married (*n*=92)	83 (90.2%)	9 (9.8%)	
Co-habiting (*n*=21)	19 (90.5%)	2(9.5%)	
0.249			
Widow/Widower (*n*=35)	33 (94.3%)	2 (5.7%)	
Divorced (*n*=55)	47(85.5%)	8(14.5%)	

Discussion

This study aimed at determining the prevalence of depression and associated factors among PLWH attending CTCs in Dar es Salaam, Tanzania. The findings revealed that the prevalence of depression among PLWH is 9.6%. Furthermore, some participants in the current study reported facing difficulties in managing symptoms related to depression.

The prevalence of depression in this study was about two times higher than that of the general population (1). In other similar studies, depression occurs more commonly among HIV-positive people, with a prevalence that is three to four times higher than the general population (33), (34). The prevalence of depression among PLWH in this study was reported

to be lower than in other similar studies (1), (7), (9), (24), (35) – (39). This may be explained by the fact that this study was conducted during the first outbreak of Covid -19 (June-September 2020) in Tanzania, whereby, almost every person elsewhere had a higher level of depression related to Covid-19 than that of their HIV status (40)-(42). PLWH are aware that they are immuno-compromised and more susceptible to the impact of Covid-19 compared to other individuals (43). Therefore, being scared about the new viral disease is a common phenomenon compared to the one they have been living with for several years. Even though the prevalence of depression among PLWH in this study looks a little bit lower compared to other similar studies, it is more than two times that of the general population. This prevalence calls for the need of mental health screening services to be integrated into the treatment package offered to PLWH which may eventually contribute to better clinical outcomes.

Regarding the management of day-to-day difficulties brought by depression, the majority of the participants in this study reported having disclosed their HIV status to their loved ones or close relatives and hence received social support. In addition, the counseling services received at the CTCs might have contributed to the improved self-management of daily difficulties attributed to depression among the study participants. This is because; counseling and other psychotherapy are reported to reduce depression among people PLWH (44). In contrast to our findings, the devastating effect of the disease and the fact that HIV/AIDS is still incurable increases the tension among the patients that overwhelm the management of difficulties caused by depression (45). Commonly, depressed clients experience problems in many areas of their function such as difficulty in falling asleep, feeling tired unnecessarily, and being worried about little things as reported in various studies (46). Family and social support can reduce depressive symptoms among the participants leading to normal social and personal functioning (48). However, this is an interesting area that needs further investigation in the future.

In our study findings, females who lived with HIV were significantly more likely to experience depression compared to males. This may have been influenced by known gender differences in the prevalence of depression, where higher rates occur in women (2,8). Depression was not associated with other demographic characteristics such as age, marital status, education level, and time lived with HIV. A similar finding was reported in India (47) where demographic variables, HIV infection route, disease duration had no significant associations with depression. In other studies, gender is associated with depression. For example, studies in India reported that having a partner is protection for depression among

men, while low education levels and unemployment are associated with a high prevalence of depression among females living with HIV (48).

Limitations

This was a health facility-based study nevertheless most of the studies in comparison were facility and community-based, thus the findings might not reflect the real prevalence of depression in the study area. However, this study sheds some light on the prevalence of depression among PLWHIV in the facility. We recommend another study which will combine both community and facility data for more precise prevalence

Conclusion

The prevalence of depression was two times higher among PLWH attending CTCs in the study compared to that of the general population. We thus recommend that the diagnosis of depression in PLWH should be promoted and popularized. Moreover, mental health services should be incorporated into the national HIV programs to reduce the negative impacts of depression among people PLWH in Tanzania.

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Authors' contributions

G.G.L. and M.K.I, Investigated, analyzed, and wrote the main manuscript text, J.S.A., and I.H.M investigated and prepared the methodology of the study. All authors reviewed the manuscript.

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