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Research Article

Factors Associated with Quality of life among Adults Living with HIV/AIDS in Tigray Region, Ethiopia

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Abstract:

Background: Depression has significant negative impacts on people living with HIV/AIDS (PLWHA) as it potentially reduces their quality of life (QOL) and leads to death. QOL serves as a key indicator of prognosis among PLWHA, with a lower QOL score relating to a higher incidence of mortality. In HIV care, the focus has switched to symptom management and improving PLWHA's quality of life. As a result, assessing QOL is critical, and the purpose of this study was to determine QOL and identify factors associated with QOL among depressed HIV-positive adults in Ethiopia's Tigray region.

Methods: An institutional-based cross-sectional study was conducted in the Tigray region, Ethiopia, employing a simple random sampling technique to recruit 635 HIV/AIDS. Logistic regression model analyses were used to identify factors associated with quality of life. The level of significance was established at p-value ≤ 0.05.

Results: This study depicted that 48.2% (302) of the respondents had poor overall quality of life. Furthermore, the descriptive analysis depicted that 29.2% (183) of the respondents had rated their Quality of Life as poor; additionally, over half (59.9%) of the respondents were satisfied and perceived their health as good. Out of the 302 respondents with poor overall Quality of Life, more than half, 67.9% (205), were depressed, and those enduring depression had 3.39 times higher chance of reporting poor overall Quality of Life than their counterparts, and depression was statistically associated with poor overall Quality of Life.

Conclusions: More than half of the study respondents were depressed, and the majority of those who were depressed had low overall quality of life. Depression was linked to poor overall quality of life. As a result of the findings of this study and a related literature review, the researcher developed management guidelines as a means of providing direction for depressed adults living with HIV/AIDS in Ethiopia's Tigray region to improve their quality of life.

Key words: HIV/AIDS; quality of life; Tigray; ethiopia; factors associated with quality of life; antiretroviral therapy

Introduction

HIV is one of the major health problems worldwide [1]. Most HIV infected people live in developing countries [2]. Although governments and health organizations invest a lot to improve the health conditions, the QOL of PLWHA still needs special attention [3]. The World Health Organization has defined QOL as "individuals' perceptions of their position in life in the context of the culture and value systems in which they live and about their goals, standards, expectations, and concerns." This definition reflects the view that QOL refers to a subjective evaluation embedded in a cultural, social, and environmental context [4]. Quality of life is one of the key factors in evaluating the health status of PLWH, and improving it is one of the important treatment goals. Assessing QOL can provide an accurate assessment of how a patient's life is affected by diseases and treatments [5]. Even though the availability of highly active antiretroviral therapy (HAART) reduced the mortality rate of PLWHA, there remained a range of physical, psychological, and socio-cultural problems that are essential to QOL and performance of activities of daily living within this group [6]. The QOL encapsulates an overall sense of well-being that considers happiness and satisfaction with life [7]. Clinical testing and treatments for HIV/AIDS, in recent years, have led to increased survival and longevity of these patients. This new reality of HIV as a chronic rather than life-ending condition makes the determination of QOL as a target for outcome measurement and improvement for PLWHA. Evidence from India revealed that about half of the respondents perceived their QOL (50.3%) and health status (52.9%) as good, whereas about one-quarter (25.8%) perceived their QOL as poor, and one-third (33.5%) felt their health status was poor [7]. Other attributes contributing to QOL were found to be younger age and lower education levels were negative impacting factors, while high CD4 cell count was a positive impacting factor (8). A study done in Gondar depicted that 27% [81] of the respondents living with HIV/AIDS had poor overall QOL, with widows and divorcees significantly associated with poor overall QOL [9]. A study has shown associations between CD4 cell count, time since HIV diagnosis, and QOL among PLWHA [10]. Depressed respondents had significantly lower QOL than the non-depressed respondents, and the lowest scores of QOL were in the social domain of QOL. Similarly, another study indicated significant findings amongst depressed HIV patients and lower QOL compared to non-depressed HIV infected patients [11, 12]. Antiretroviral therapy (ART) has transformed HIV from a fatal to a chronic health condition for those with consistent access to medication. Therefore, improving the quality of life (QOL) among PLWHA is an important goal of HIV treatment and care. The QOL of patients with chronic diseases, such as HIV/AIDS, can impact their treatment by leading to progression in functional status and wellbeing, which are essential outcomes. QOL serves as a key indicator of prognosis among PLWHA, with a lower QOL score relating to a higher incidence of mortality. In HIV care, the focus has switched to symptom management and improving PLWHA's quality of life. Furthermore, there is no similar study done in the study area, therefore, this study aims to assess QOL and factors associated with QOL among people living with HIV/AIDS in Tigray, Ethiopia. As a result, the findings may also contribute to the identification of associated factors in other populations with similar characteristics.

Methods

This study was carried out in the Tigray region of Ethiopia, which is located in the northern part of the country and is 783 km from Addis Ababa, Ethiopia's capital city. According to the Federal Democratic Republic of Ethiopia's Central Statistical Agency (CSA). The main aim of this study was to assess QOL and identify factors associated among adults living with HIV/AIDS in the Tigray region, Ethiopia. A cross-sectional study design was carried out to determine quality of life and factors associated with quality of life among adults living with HIV/AIDS in the Tigray region, Ethiopia.

Study population and sample size

Adults whose age were> 18 years of age living with HIV/AIDS who visited ART clinics in the Tigray region, Ethiopia, were the study's target population. The final sample size of 635.

Data Collection

The information was gathered through face-to-face interviews using a questionnaire. In this study, the World Health Organization Quality of Life (WHOQOL-HIV BREF) and the Patient Health Questionnaire (PHQ-9) instruments were used to determine QOL and depression, respectively.

Data Analysis

Data was entered into EPI Info™ 2005 software and then exported to the Statistical Package of Social Science™ (SPSS™) software version 22 for analysis. The data was analyzed in two stages: descriptive and inferential. Descriptive and inferential analyses were used to determine QOL and factors associated with QOL among people living with HIV/AIDS in Tigray, Ethiopia. Furthermore, a statistically significant association with QOL was identified based on an Odds Ratio (OR), 95% CI, and p-values. Statistically significant association was declared at $p<0.05$

Results

Socio-demographic characteristics of the respondents

In this study, the mean age of the respondents was 39 years (SD ± 9.49) and ranged from 18 to 68 years. About 41.9% (262) of the respondents were in the age category 18-34 years, while 50.2% (314) were in the age category 35-51 years. Males accounted for 47.3% (296), whereas the remaining 52.7% (330) were females. Regarding the level of education of the respondents 29.1% (182) had attended high school, while 27.2% (170) were able to read and write, where as 16% (100) of respondents were illiterate, followed by 10% (63) had attended elementary school, and 8.9% (56) of the respondents had achieved a degree or above at university. The rest 8.8% (55) of the respondents attended college diploma. Concerning occupation of the respondents 26.5% (166) were government employees, while 21.1% (132) the respondents had own business, followed by daily labourers 16.5% (103), farmers which accounted for 12.3% (77), house wives 10.2 % (64), jobless 7% (44), students 6.4 % (40) and pension 1.4% (9). Psychological characteristics of the respondents Accordingly, this study found that 55% (344) of the total respondents had depression, of which 34.2% (214) scored in the mild depression range with PHQ-9 score of >5, whereas 14.1% (88) scored in the moderate depression range with PHQ-9 score of >10, and 4.2 % (26) scored moderately severe depression range with PHQ-9 score of 15, while the rest 2.6% (16) of the respondents scored in the severe depression range with PHQ-9 score of 20.

Quality of life among PLWHA

This study aimed to assess the QOL of adults living with HIV in the Tigray region, Ethiopia. This study showed that 48.2% (302) of all the respondents had poor overall QOL. The mean score domains of QOL of the respondents depicted that QOL was highest in the level of dependence domain, whilst the spiritual domain indicated the lowest QOL among the respondents. This study found that, from the total respondents, more than half 54.5% (341) of the respondents had good physical QOL, whereas 47.9% (300) had reported good psychological QOL, followed by 48.1% (301),61% (382),55.1% (345), and 47.1% (295) had good QOL in the level of dependence, social, environmental and spiritual domains of QOL, respectively. Moreover, almost half 45.5% (285) of the respondents had poor physical QOL, whilst 52.1% (326) had poor psychological QOL, followed by 51.9% (325), 39% (244), and 44.9% (281) reported poor QOL in the level of dependence, social, and environmental domains of QOL, respectively. Over half (52.9%, N=331) of the respondents had poor spiritual QOL (Figure 1).

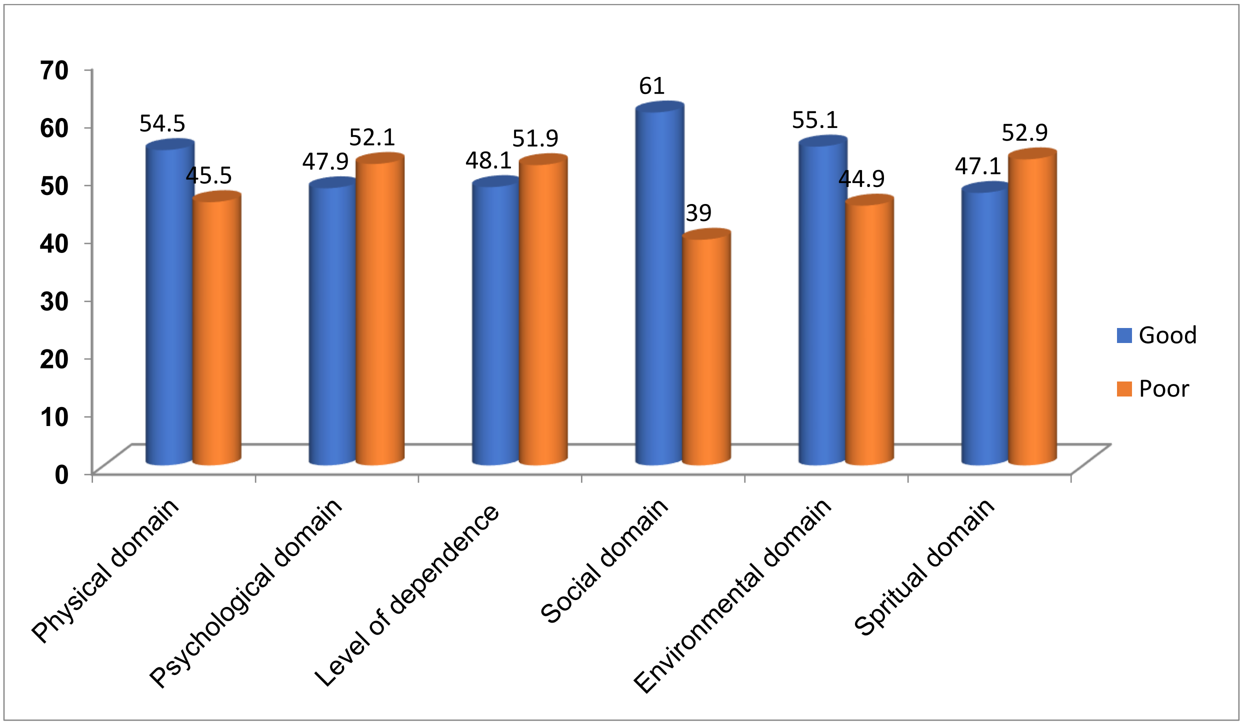

Figure 1: Status of domains of QOL of the respondents (N=626)

This study depicted that the majority, 53.3% (161) of the respondents who had taken ART for 0-60 months had poor overall QOL, whereas 52.8% (171) respondents who received ART for 0-60 months had good overall QOL. Moreover, the current study depicted that those respondents with low CD4 count had poor overall QOL compared to respondents with high CD4 count. Out of the 302 respondents with poor overall QOL, nearly two-thirds (67.9%) were depressed.

Factors associated with overall QOL among the respondents

Occupation, income, CD4 count, duration of ART use, and depression were significantly associated with the poor overall QOL. In this study, respondents who had lower monthly income had poor overall QOL compared to those who had higher monthly income. This association was also statistically significant with AOR=5.36 (95% CI; 1.55-18.46) (Table 2). This study revealed that 33.4% (101) of respondents with a CD4 count of 301-500 and 31.1% (94) of the respondents with 501-800 cells/ml had poor overall QOL. Respondents with low CD4 count were 4.42 times more likely to have poor overall QOL compared to respondents with higher CD4 count. Having a low CD4 count was associated with poor overall QOL.

As described in Table 1, more than half of the respondents who received ART for a shorter duration had poor overall QOL. Receiving ART for a shorter duration was statistically associated with poor overall QOL. This study found that more than 67.9% of the depressed respondents had poor overall QOL. Depressed respondents were 3.39 times more likely to have poor overall QOL, and having depression was statistically significantly associated with poor overall QOL (Table 1).

Table 1. Factors associated with overall QOL among the respondents (N=626)

Variables	**Overall QOL**		**COR(95% CI)**	**AOR(95% CI)**	**P-value**
	Good (n=324)	**Poor (n= 302)**			
Occupation					
Jobless	4.9%(16)	9.3%(28)	3.64(1.474-8.96)	3.41(1.23-9.415)	**0.018***
Daily labourer	14.2%(46)	18.9%(57)	2.57(1.195-5.543)	3.68(1.50-8.98)	**0.004***
House wife	8%(26)	12.6%(38)	3.04(1.325-6.952)	3.58(1.38-9.25)	**0.009***
Farmer	9%(29)	15.9%(48)	3.44(1.535-7.70)	3.68(1.42-9.55)	**0.007***
Government employee	29.3%(95)	23.5%(71)	1.55(0.75-3.22)	2.09(0.89-4.92)	0.090
Own business	26.2%(85)	15.6%(47)	1.15(0.542-2.435)	1.692(0.67-4.12)	0.245
Student	8.3%(27)	4.3% (13)	1	1	
Income#					
≤1000	11.7%(38)	23.2%(70)	6.63(2.28-19.27)	5.36(1.55-18.461)	**0.008***
1001-4000	50.3%(163)	42.1%(127)	2.80(1.014-7.76)	2.34(0.78-7.04)	0.130
4001-6000	17%(55)	20.2%(61)	3.99(1.39-11.475)	2.38(0.764-7.39)	0.135
6001-8000	11.7%(38)	7.6%(23)	2.18(0.712-6.7)	1.44(0.441-4.673)	0.548
8001-10000	3.7%(12)	5.3%(16)	4.8(1.39-16.62)	4.124(1.11-15.33)	**0.034***
≥10,001	5.6%(18)	1.7%(5)	1	1	
CD4 count					
≤300	20.1%(65)	19.5%(59)	2.36(0.794-7.02)	4.42(1.363-14.31)	**0.013***
301-500	27.2%(88)	33.4%(101)	2.984(1.023-8.7)	4.56(1.45-14.36)	**0.009***
501-800	29.3%(95)	31.1%(94)	2.573(0.89-7.50)	3.32(1.06-10.39)	**0.040***
801-1100	19.45%(63)	14.2%%(43)	1.78(0.59-5.341)	2.58(0.80-8.32)	0.113
1101-1437	4%(13)	1.7%(5)	1	1	
Duration of ART					
0-60 months	52.8%(171)	53.3%(161)	1.69(1.054-2.70)	2.03(1.19-3.47)	**0.009***
61-121 months	28.4%(92)	25.4%(107)	2.09(1.26-3.45)	2.45(1.39-4.29)	**0.002***
122-182 months	18.8%(61)	11.3%(34)	1	1	
Depression					
Yes	42.9%(139)	67.9%(205)	2.81(2.03-3.90)	2.81 (1.96-4.03)	**0.000***
No	57.1%(185)	32.1%(97)	1	1	

*** Statistically significantly associated at P≤0.05**

#1 USD is equivalent to 50 Ethiopian birr

Discussion

This study aimed to assess the quality of life (QOL) and identify associated factors among adults living with HIV/AIDS in the Tigray region of Ethiopia. The findings revealed that nearly half (48.2%) of the respondents experienced poor overall QOL. This result is consistent with findings from Arba Minch, Ethiopia, where 47.1% of participants had poor QOL (6). However, the proportion is notably higher than the 27% reported in a study conducted in Gondar (9). The difference may be attributed to variations in sample size, geographic context, healthcare access, or sociocultural dynamics. The study also revealed that 29.2% of participants rated their own QOL as poor, while a notable 59.9% perceived their health status positively. This is comparable to findings from a study in India, where approximately 25.8% of participants rated their QOL as poor, and over half perceived their health as good (7). Such perceptions may reflect differing personal expectations, cultural attitudes toward illness, or the availability of psychosocial support.

Depression emerged as a significant factor influencing QOL. Over half (55%) of the respondents were depressed, and of those with poor QOL, a substantial 67.9% were experiencing depression. The multivariable analysis indicated that depressed individuals were 3.39 times more likely to report poor QOL. This aligns with several studies from India and other regions, which have consistently shown that depression is strongly associated with lower QOL among PLWHA (11,12). Depression may worsen adherence to ART, reduce motivation for self-care, and impair social relationships, thereby exacerbating the decline in QOL. Another critical finding was the association between CD4 count and QOL. Respondents with lower CD4 counts were significantly more likely to have poor QOL (AOR = 4.42). This supports evidence from other studies, such as those conducted in India and Arba Minch, which showed that higher CD4 counts were linked with better QOL (6,14). Since CD4 count is a proxy for immune function, lower levels may reflect greater physical health complications, which can directly impact a person's physical and psychological well-being. Duration of ART use was also associated with QOL. Those who had been on ART for a shorter duration were more likely to have poor QOL. This may be because individuals in the early stages of ART may still be adjusting to the treatment, dealing with side effects, or experiencing delayed clinical improvement. While these findings are consistent with some Ethiopian studies (6), they differ from findings in South India, where a longer duration of ART use was unexpectedly associated with lower QOL (15). This discrepancy could be due to differences in healthcare systems, ART adherence support, or cumulative drug side effects over time. Monthly income was another significant predictor. Individuals with lower income levels had 5.36 times higher odds of experiencing poor QOL. Financial constraints may limit access to adequate nutrition, transportation to health facilities, and opportunities for psychosocial support. This finding is consistent with studies conducted in Ilorin and elsewhere, which demonstrated that higher income is positively associated with better QOL among PLWHA (13). Taken together, the study reinforces the multifactorial nature of QOL among PLWHA. Beyond the biological impacts of HIV, social determinants such as income, education, and employment, as well as mental health conditions like depression, play critical roles in shaping individual experiences and well-being.

Conclusions

This study aimed to determine QOL and factors associated with QOL among adults living with HIV in Ethiopia's Tigray region. In this study, almost half of the respondents had poor overall QOL. Furthermore, from the total respondents, more than half of them had depression, the majority of the depressed respondents had poor overall QOL, and having depression was statistically associated with poor overall QOL. This study found that respondents who had lower monthly income had poor overall QOL at risk of having poor overall QOL compared to respondents who had higher monthly income, and it was also statistically significantly associated with poor overall QOL. Respondents with low CD4 count had poor overall QOL compared to respondents with higher CD4 count, and having a low CD4 count was associated with poor overall QOL. Respondents who had received ART for a shorter duration had poorer overall QOL than respondents who had received it for a longer duration. Taking ART for a shorter period of time was statistically associated with poor overall QOL.

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Authors' contributions

ADA was the principal investigator of the study; made substantial contributions in conception, selecting the design, data collection, as well as analysis and interpretation of data. TM was the supervisor of the research, made substantial contributions to the conception and design of the study, and was involved in critically revising the manuscript. All authors read and approved the final manuscript.

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Declarations

Ethics approval and consent to participate

Ethical approval and clearance were obtained from the University of South Africa's (UNISA) Health Studies Research Ethics Committee (HSREC). The ethical clearance reference number is (HSHDC/913/2019), and all participants signed an informed consent

Consent for publication

Not applicable.

Competing interests

The authors declare no competing interests.

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