Original Article

Health-related quality of life among people living with HIV/AIDS on highly active antiretroviral treatment: A questionnaire-based study

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Abstract

Introduction: The knowledge of the effect of sociodemographic and disease-related factors on health-related quality of life (HRQoL) among people living with HIV/AIDS (PLWHA) is important for planning comprehensive health-care services for them.

Material and Methods: Two hundred PLWHA on antiretroviral therapy (ART) volunteered to complete a self-reported World Health Organization's Quality of Life–HIV brief questionnaire (WHOQoL-HIV-BREF) that examines six domains each with four items (physical, psychological, level of independence, social, environmental, and spiritual) with 25 facets and additional 5 facets specific to PLWHA (symptoms of HIV, social inclusion, forgiveness, worries about the future, and death and dying).

Results: Only 135 questionnaires from 73 (53.3%) men and 63 (46.7%) women (male: female – 1.14:1) aged 20–82 years (mean ± standard deviation: 42.9 ± 10.5 years) were found complete. Eighty-five (63%) individuals were aged 41–60 years, 78 (57.8%) individuals were matriculates, graduates, or postgraduates, 76 (56.3%) respondents were married, and 38 (28.1%) were widows/widowers. Staying-alone workers comprised 43 (31.8%) individuals. Overall health and HRQoL were rated satisfactory ($n = 85.2\%$) and good/very good ($n = 74.8\%$) by a significantly greater number of individuals ($P = 0.001$). Pearson's Chi-squared test showed no statistically significant ($P > \alpha$) associations between good HRQoL and variables such as age >40 years, gender, education, marital status, duration of disease, disclosure of serostatus to family, ART for >3 years, and CD4 >200 cells/mL.

Conclusion: Regular ART can result in adequate control of immunosuppression and no comorbidities in a majority of PLWHA, family and social acceptance, and financial security can result in overall good HRQoL in all six domains within the WHOQoL-HIV-BREF. The study is limited by its cross-sectional study design and small sample size.

Keywords: Acquired immunodeficiency syndrome, highly active antiretroviral therapy, Human Immunodeficiency Virus, People Living with HIV/AIDS, quality of life, World Health Organization's Quality of Life–HIV brief questionnaire

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INTRODUCTION

Human immunodeficiency virus (HIV) infection is one of the most serious public health problems worldwide. The developing nations of Africa and Southeast Asia including India experiencing the major brunt of the disease epidemic. Globally, about 37.9 million people with World Health Organization (WHO)-estimated adult (aged 15–49 years) prevalence of 0.8% (0.6%–0.9%) is still affected even after the introduction of highly active antiretroviral therapy (ART). While approximately 62% are on ART, new cases accounted for 1.7 million in 2018. As per NACO estimates, the number of people living with HIV/AIDS (PLWHA) with an estimated adult prevalence of 0.22% (0.16%–0.30%) in 2017, India, has the third-largest HIV-infected population after Nigeria and South Africa.[1] Andhra Pradesh, Maharashtra, Goa, Tamil Nadu, Karnataka, Telangana, and the Northeast states top the list with a prevalence between 0.22% and 2.04% and contributed a major share to the 21.40 lakh People Living with HIV/AIDS (PLWHA) registered in 2017.[2] Himachal Pradesh is a small hill state of north India with a population of approximately 70-lakh with an estimated adult PLWHA prevalence of 0.03-0.09% had 3148 registered cases and 95% ART coverage in 2017.[2]

The HIV infection has been transformed into a chronic controllable but not yet curable disease after the provision of free access to ART to all HIV infected. This has led to increased life expectancy and risk for age-related comorbidities such as diabetes, cardiac and pulmonary diseases, and cancers in addition to ART-related adverse effects.[3,4] This in turn means that the care of these individuals must now focus on improving their Health-related Quality of Life (HRQoL).[5] This is important as HRQoL is of paramount significance for persons affected by such a chronic disease as therapeutic objectives must now focus beyond stopping the disease progression to reducing the effects of debilitating symptoms, modifying the adverse psychosocial consequences, and improving abilities.[6] This study examines HRQoL and evaluates the effect of sociodemographic and disease-related factors on HRQoL among PLWHA in Himachal Pradesh due to paucity of relevant data. The knowledge will be useful for planning comprehensive health care for these individuals envisaged in the National AIDS Control Programme.

MATERIAL AND METHODS

All PLWHA consecutively attending the dermatology outpatient clinic and/or institution-affiliated ART center for consultation and/or issues of ART were counseled between April and June 2021 for this cross-sectional, descriptive, questionnaire-based study. As formal sample size calculation was not possible during COVID_19 pandemic, for reasons of feasibility, we counseled 200 adult PLWHA on ART for this study. Only 148 (74%) questionnaires were received back and 13 incomplete forms were excluded from the final analysis. This provided a sample size of 135 individuals at 95% confidence level and 5% margin of error with 80% power to detect an effect. The study was approved by the Institutional Ethics Committee (approval number: HFW-H/DRPGMC/Ethics/2021/011, dated March 27, 2021), and only volunteer adults were enrolled after informed written consent and assuring confidentiality. Children and adolescents were excluded as they may not be able to understand or respond to the questionnaire. After a brief introduction and explaining the purpose as well as procedure of the study, all enrolled individuals were asked to judge their HRQoL over the past 4 weeks and complete a self-reported questionnaire using a slightly linguistically modified WHO Quality of Life-HIV brief questionnaire (WHOQoL-HIV-BREF) in English/Hindi as preferred by the respondent. Questions were explained by the investigator in their native language only when not understood by the respondent. The WHOQoL-HIV-BREF questionnaire is a prevalidated cross-cultural subjective measure of QoL.[7,8] It has two sections; the first section includes questions about sociodemographic and clinical variables related to HRQoL such as age, gender, marital status, education level, HIV-positive serostatus, the duration for which they are infected/diagnosed, the mode of infection, and ART status (duration, treatment adherence). The second part examines six domains each with four items (physical, psychological, level of independence, social, environmental, and spiritual) with 25 facets and additional 5 facets specific to HIV-affected persons (symptoms of HIV, social inclusion, forgiveness, worries about the future, and death and dying).[7] Responses to the questions were made across a five-point Likert scale and scored, where 1 indicates low negative perceptions and 5 indicates high positive perceptions and better QoL. Domain scores were computed according to the instructions of WHOQoL-HIV manual.[7,8] In general, individuals with mean ratings of >3.0 were categorized to have a good HRQoL while others with mean ratings of ≤3.0 were considered to have a poor HRQoL.

The data were tabulated using MS Office™ Excel® software and analyzed to look for significant associations and differences in the observed variables by IBM® SPSS® (Statistical Package for Social Sciences) version 26.0 (SPSS Inc., Chicago, USA). The categorical variables are presented as frequencies and percentages whereas continuous

variables are xpressed as mean and standard deviation (SD). Chi-square test and Student's *t*-test were used to find the significant difference and association in observed parameters and for statistical analysis of the categorical and continuous data, respectively. Pearson's Chi-squared test was used to ascertain f association (α-value) between HRQoL and studied variables. $p < 0.05$ calculated at 5% level (95% confidence interval) was considered statistically a significant. The results were interpreted as variables having statistically significant association ($p \leq \alpha$) or variables having no statistically significant association ($p > \alpha$).

RESULTS

Out of total 135 individuals comprised 73 (53.3%) were men and 63 (46.7%) women (male: female – 1.14:1) aged between 20 and 82 years (mean ± SD: 42.9 ± 10.5 years). Majority i.e., 85 (63%), of the individuals, were aged 41–60 years and 47 (34.8%) patients were aged 20–40 years. Most, 76 (56.3%), of the respondents, were married and 38 (28.1%) were widows/widowers. The majority, 78 (57.8%), of the respondents were matriculates, graduates, or postgraduates. Majority i.e., 43 (31.8%), of the respondents were employed away from home as staying-alone workers in private industrial units or drivers among males and 59 (43.7%) were homemakers among women. There were 76 (56.3%) married individuals, and 38 (28.1%) were widows/widowers of spouses who died of HIV disease. The information of positive serostatus was disclosed to immediate family members by 119 (88.1%) and spouses of 14 (10.4%) individuals. The disease duration varied from 1 week to 19 years (mean ± SD: 7.2 ± 4.3 years), and the majority, 81 (60%), of individuals had it for 5 years or more. The most common mode of acquisition was heterosexual contact and seen in 116 (85.9%) individuals. While 11 (8.1%) individuals had vertical transmission, 5 (3.7%) persons had acquired the disease after homosexual or intravenous substance abuse. Most, 78 (57.8%), of the individuals had CD4 counts of 200–500 cells/mL while counts were in the range of 100–200 cells/mL in 14 (10.4%) individuals. All have been regularly taking prescribed ART, tenofovir + lamivudine + efavirenz regimen in 93 (68.9%), and zidovudine + lamivudine + nevirapine regimen in 42 (31.1%) individuals for a mean duration of 6.2 (SD: 3.6) years. Majority i.e., 70 (51.8%), of the individuals were under treatment for 5 years or more. No individual had any other comorbidity [Table 1].

The mean scores of various WHOQoL-HIV-BREF domains were as follows: 2.95 (SD: 1.34) for "symptoms," 2.48 (SD: 0.83) for "social inclusion," 2.17 (SD: 0.91) for "forgiveness," 2.27 (SD: 0.94) for "fear of future,"

Table 1: Baseline epidemiological characteristics of study participants (*n*=135)

Baseline epidemiological characteristics	Number of cases (%)
Gender	
Males	72 (53.3)
Females	63 (46.7)
Male:female	1.14:1
Age (years)	
Range (mean±SD)	20–82 (42.9±10.5)
20–30	20 (14.8)
31–40	27 (20.0)
41–50	63 (46.7)
51–60	22 (16.3)
>60	3 (2.2)
Education status	
Illiterates	3 (2.2)
Primary education	28 (21.7)
Middle school	26 (19.3)
High school and above	63 (46.7)
Graduation ad above	15 (11.1)
Marital status	
Married	76 (56.3)
Unmarried	20 (14.8)
Widows/widower	38 (28.1)
Divorcee	1 (0.7)
Occupation	
Men	
Private job	25 (18.5)
Driver	18 (13.3)
Government employed	12 (8.9)
Student	7 (5.2)
Self-employed	6 (4.4)
Unemployed/laborer	4 (3.0)
Women	
Homemaker	59 (43.7)
Student	4 (3.0)
Serostatus disclosed to	
Immediate family members only	119 (88.1)
Spouse only	14 (10.4)
None	2 (1.5)
Other relatives	0
Duration of disease (years)	
Range (mean±SD)	1 week–19 years (7.2±4.3 years)
1 week–1 year	14 (10.4)
>1–5 years	40 (29.6)
>5–10 years	48 (35.5)
>10–15 years	30 (22.2)
>15 years	3 (2.2)
Modes of disease acquisition	
Heterosexual	116 (85.9)
Mother to child (vertical)	11 (8.1)
IV drug abuse	3 (2.2)
Unknown	3 (2.2)
MSM	2 (1.5)
Reasons for HIV testing	
Voluntarily after contact with positive case/parent	113 (83.7)
Referrals	16 (11.8)
PTB screening	3 (2.2)
Antenatal screening	3 (2.2)
CD4 cell count (latest) (cells/µL)	
Range (mean±SD)	112–1318 (445.6±226.3)
>500	43 (31.8)
>350–500	41 (30.4)
>200–350	37 (27.4)
>100–200	14 (10.4)

Contd...

Table 1: Contd...

Baseline epidemiological characteristics	Number of cases (%)
ART drug regimens	
TDF + 3TC + EFV (TLE)	93 (68.9)
ZDV + 3TC + NVP (ZLN)	42 (31.1)
Duration of ART	
Range (mean±SD)	1 week– 15 (6.2±3.6)
<1–3	31 (23)
>3–5	34 (25.2)
>5–10	48 (35.5)
>10–15	22 (19.3)

ART: Antiretroviral therapy, EFV: Efavirenz, 3TC: Lamivudine, MSM: Men having sex with men, NVP: Nevirapine, PTB: Pulmonary tuberculosis, SD: Standard deviation, TDF: Tenofovir disoproxil fumarate, TLE: Tenofovir + lamivudine + efavirenz, ZDV: Zidovudine, ZLN: Zidovudine + lamivudine + nevirapine, HIV: Human immunodeficiency virus, IV: Intravenous

and 4.0 (SD: 0.98) for overall "HRQoL." In general, 56 (41.5%), 58 (43%), and 11 (8.1%) individuals rated their current health status as very good, good, and neither good nor bad, respectively. Similarly, 33 (24.4%), 68 (50.4%), and 36 (19.2%) individuals rated their HRQoL as very good, good, and neither good nor bad, respectively [Table 2]. Although a comparison of the domain scores showed no difference in statistical significance among two groups of individuals with good and poor HRQoL, health and an overall HRQoL were rated satisfactory ($n = 85.2\%$) and very good ($n = 74.8\%$) by a significantly greater number of individuals ($P = 0.001$) [Table 3]. Pearson's Chi-square test showed no statistically significant ($P > \alpha$) association between good HRQoL and variables such as age of more than 40 years, gender, education, marital status, duration of disease, route of infection, disclosure of serostatus to others, duration of ART more than 3 years, and improved CD4 counts of more than 200 cells/mL [Table 4].

DISCUSSION

The clinicodemographic features and salient disease-related attributes such as, CD4 counts of 200-500 cells/microliter among 57.8%, good adherence to treatment, and absence of any co morbidity in a majority of individuals was similar as have been described previously.[9,10]

Highly significant advances have been made in HIV therapeutics in the last few decades particularly in safety and efficacy of ART drugs, dosing schedules for reducing pill load, and devising multidrug regimens. However, the ART only slows down the progression of disease while a definitive cure for HIV remains elusive to date. This has significantly improved the life expectancy of PLWHA and perhaps the possibility of the occurrence of other comorbidities related to age, HIV disease, or its therapy with compromised quality of life.[3] Several studies have

delineated HIV-related poor HRQoL when compared to that of the general population.[11-16] Being <35 years of age, being single (staying alone, divorced, and widowed), low socioeconomic status, unemployment and low income, inadequate social support, decreased adherence to ART, advancing HIV stage (decreased immunological status and low CD4+ T-cell count), having symptoms of HIV/AIDS, HIV-associated stigma, and psychiatric and physical comorbidities are the major determinants identified for poor HRQoL across studies worldwide.[17-21] It is known that unemployed or having low income can cause low quality of life while having regular employment and financial security will enhance the socioeconomic status facilitating social integration, providing opportunities for better health, and improve the quality of life.[17,20,22] Similarly, PLWHA who share information about their HIV-positive serostatus with their spouses, family members, friends, or treating physicians show better HRQoL scores compared to those who do not disclose their disease to anyone.[23] As is also evident in this study, the unconditional acceptance among peers and family members can make life comfortable and less stressful. However, only a steady marital and stable family life provides the necessary emotional and social backing to PLWHA and higher HRQoL compared to those staying alone, divorced, separated, or widowed.[12,24,25] In addition, the presence of comorbidity/comorbidities negatively affect the quality of life as compared to those with no comorbidity.[17,24,26] Our study shows that the majority of our respondents had well accepted their disease status leading to a satisfactory health status in 85.2% and good HRQoL in 74.8% of cases. Although Pearson's Chi-square test showed no statistically significant associations ($p > \alpha$), stable economic status, strict adherence to ART leading to improved CD4 counts and asymptomatic HIV disease without comorbidities, and acceptance of their positive serostatus by their peers/family members could be the factors responsible for a high HRQoL in the majority of studied PLWHA. Since letting others know about their diagnosis may result in fear, repulsion, and discrimination among peers, a small number of respondents expressed that breach of confidentiality is a major reason for not sharing their positive serostatus. This calls for adequate support by the health-care providers and counseling of the family members before they choose whether to disclose the serostatus or not.[17] Adequate control of immunosuppression with strict adherence to ART, absence of comorbidities, financial security, good family support, and acceptance in society have an overall good HRQoL in all the six domains within the WHOQoL-HIV-BREF in the majority of HIV-positive individuals.

Table 2: Results of WHO Quality of Life-HIV brief questionnaire (WHOQoL-HIV-BREF) (*n*=135)

Domains (facets)	Questions Perception score on Likert Scale*	Number of cases (%)					Perception score, mean±SD
		1	2	3	4	5	
Symptoms (F50)	How much are you bothered by any unpleasant physical problems related to your HIV that you may have? (आपअपनेएचआईवीसेसम्बन्धितकिसीभीअप्रियशारीरकसमस्याओं सेकितनापरेशानहैं?)	46 (34.1)	52 (38.5)	20 (14.8)	12 (8.9)	5 (3.7)	2.95±1.34
	To what extent do you fear possible future (physical) pain? (आपभविष्यमेंशारीरकदर्दसेकिसहदतकडरतेहैं?)	42 (31.1)	60 (44.4)	18 (13.3)	13 (9.6)	2 (1.5)	
	To what extent do you feel any unpleasant physical problems related to your HIV infection prevents you from doing things that are important to you? (आपकेएचआईवीसंक्रमणसेसंबन्धितकोईभीशारीरकसमस्याआप कोकिसहदतक उनकार्योंकोकरनेसेरोकतीहेजोकीआपकेलिएमहत्व पूर्णहैं?)	39 (28.9)	47 (34.8)	24 (17.8)	18 (13.3)	7 (5.2)	
	To what extent are you bothered by fears of developing any physical problemsΙ (किसीभीशारीरिकसमस्याकेपैदाहोनेकीआशंकासेआपकिसहदतक परेशानहैं?)	36 (26.7)	56 (41.5)	21 (15.5)	18 (13.3)	4 (3)	
Social inclusion (F51)	To what extent do you feel accepted by the people you know? (आपकेजाननेवालेलोगोंकोआपकिसहदतकसविकार्यहैं?)	26 (19.2)	29 (21.5)	23 (17)	40 (29.6)	17 (12.6)	2.48±0.83
	How often do you feel that you are discriminated against because of your health condition? (आपकोकितनीबारलगताहैआपकीस्वास्थ्यस्थितिकेकारणआपके साथभेदभावकियाजाताहै?)	69 (51.1)	38 (28.1)	10 (7.4)	13 (9.6)	5 (3.7)	
	To what extent do you feel accepted by your community? (आपकेरिश्तेदारों/समुदायमेआपकिसहदतकसविकार्यहैं?)	23 (17.0)	25 (18.5)	26 (19.2)	47 (34.8)	14 (10.4)	
	How much do you feel removed/alienated/emotionally distant from others/those around you? (आपदूसरों/अपनेआसपासकेलोगोंसेअपनेआपकोभावनात्मकरूप सेकितनादूरमहसूसकरतेहैं?)	55 (40.7)	41 (30.4)	14 (10.4)	22 (16.3)	3 (2.2)	
Forgiveness (F52)	How much do you blame yourself for your HIV infection? (आपअपनेएचआईवीसंक्रमणकेलिएखुदकोकितनादोषीमानतेहैं?)	68 (50.4)	32 (23.7)	10 (7.4)	20 (14.8)	5 (3.7)	2.17±0.91
	How bothered are you by people blaming you for HIV status? (एचआईवीस्थितिकेलिएलोगोंद्वाराआपकोदोषीठहरनाआपकोकित नापरेशानकरताहैं?)	54 (40)	37 (27.4)	14 (10.4)	25 (18.5)	5 (3.7)	
	How much guilty do you feel about being HIV-positive? (एचआईवीसंक्रमणहोनेकेबारेमेंआपकितनादोषीमहसूसकरतेहैं?)	50 (37)	48 (35.5)	13 (9.6)	19 (14.1)	5 (3.7)	
	To what extent do you feel guilty when you need the help and care of others? (जबआपकोदूसरोंकीमददऔरदेखभालकीजरूरतहोतीहै,आपकिस हदतकदोषीमहसूसकरतेहैं?)	39 (28.9)	46 (34.1)	17 (12.6)	26 (19.2)	7 (5.2)	
Fear of the future (F53)	To what extent are you concerned about your HIV status breaking your family line and your future generations? (आपअपनीएचआईवीसिथितिऔरअपनीपारिवारिकपीढ़ीकोतोड़नेके बारिकिसहदतकचिंतितरहतेहैं?)	41 (30.4)	29 (21.5)	18 (13.3)	38 (28.1)	9 (6.7)	2.27±0.94
	To what extent are you concerned about how people will remember you when you are dead? (आपकिसहदतकचिंतितरहतेहैंकीमृत्युकेबादलोगआपकोकैसेयादर खेंगे?)	50 (37)	41 (30.4)	23 (17)	16 (11.8)	5 (3.7)	
	To what extent does any feeling that you are suffering from fate/destiny bother you? (आपकिसहदतकपरेशानरहतेहैंकीआपखराबभाग्यसेपीड़ितहैं?)	50 (37)	40 (29.6)	17 (12.6)	25 (18.5)	3 (2.2)	
	How much do you fear the future? (आपअपनेभविष्यकेबारेमेंकितनाडरतेहैं?)	47 (34.8)	48 (35.5)	19 (14.1)	15 (11.1)	6 (4.4)	
Death and dying (F54)	How much do you worry about death? (आपमृत्युकेबारेमेंकितनाचिंतितरहतेहैं?)	68 (50.4)	40 (29.6)	16 (11.8)	8 (5.9)	3 (2.2)	1.93±0.93
	How much bothered are you by the thought of not being able to die the way you would want to? (जिसतरहकीमृत्युचाहतेहैंवैसानाहोनेकेविचारसेआपकिसहदतकप रेशानरहतेहैं?)	62 (45.9)	35 (25.9)	21 (15.5)	13 (9.6)	4 (3)	
	How much concerned are you about how and where you will die? (मृत्युकहाँऔरकैसेहोगीकेविचारसेआपकिसहदतकचिंतितरहतेहैं?)	59 (43.7)	45 (33.3)	15 (11.1)	13 (9.6)	3 (2.2)	

Contd...

Table 2: Contd...

Domains (facets)	Questions Perception score on Likert Scale*	Number of cases (%)					Perception score, mean±SD
	How much preoccupied are you about suffering before dying? (मृत्युसेपहलेआपकितनीतकलीफमेंहैंइसविचारमेंआपकिसहदतक डूबरहतेहैं?)	57 (42.2)	37 (27.4)	20 (7.4)	16 (11.8)	5 (3.7)	
HRQoL*	How satisfied you feel with your health?						4.0±0.98
	Very good (score 5)	56 (41.5)					
	Good (score 4)	59 (43.7)					
	Neither poor nor good (score 3)	11 (8.1)					
	Poor (score 2)	3 (2.2)					
	Very poor (score 1)	6 (4.4)					
	How would you rate your quality of life?						
	Very good (score 5)	33 (24.4)					
	Good (score 4)	68 (50.4)					
	Neither poor nor good (score 3)	36 (19.2)					
	Poor (score 2)	5 (3.7)					
	Very poor (score 1)	3 (2.2)					

*A score of 5 indicates low, negative perceptions and score 1 indicates high, positive perception for facets F50, F51, and F52. The scoring was in reverse order for facets F 53 and F54 and overall HRQoL. Interpretation: score 1 - not at all; score 2 - a little; score 3 - a moderate amount; score 4 - very much and score 5 - an extreme amount. HRQoL: Health-related quality of life, HIV: Human immunodeficiency virus, SD: Standard deviation

Table 3: Results of WHO Quality of Life-HIV brief questionnaire (WHOQoL-HIV-BREF) (*n*=135)

Domains (facets)	Questions	Number of cases		*P**
		Good HRQoL	Poor HRQoL	
Symptoms (F50)	How much are you bothered by any unpleasant physical problems related to your HIV that you may have?	98	37	0.930
	To what extent do you fear possible future (physical) pain?	102	33	
	To what extent do you feel any unpleasant physical problem related to your HIV infection prevents you from doing things that are important to you?	86	49	
	To what extent are you bothered by fears of developing any physical problems?	92	43	
	Perception score, mean±SD	2.176±0.869	2.208±0.967	
Social inclusion (F51)	To what extent do you feel accepted by the people you know?	55	80	0.344
	How often do you feel that you are discriminated against because of your health condition?	107	28	
	To what extent do you feel accepted by your community?	48	87	
	How much do you feel removed/alienated/emotionally distant from others/those around you?	95	39	
	Perception score, mean±SD	2.498±0.834	2.166±0.875	
Forgiveness (F52)	How much do you blame yourself for your HIV infection?	100	35	0.645
	How bothered are you by people blaming you for HIV status?	91	44	
	How much guilty do you feel about being HIV-positive?	98	37	
	To what extent do you feel guilty when you need the help and care of others?	85	50	
	Perception score, mean±SD	2.177±0.923	2±0.836	
Fear of the future (F53)	To what extent are you concerned about your HIV status breaking your family line and your future generations?	70	65	0.700
	To what extent are you concerned about how people will remember you when you are dead?	91	44	
	To what extent does any feeling that you are suffering from fate/destiny bother you?	90	45	
	How much do you fear the future?	95	40	
	Perception score, mean±SD	2.263±0.944	2.416±1.068	
Death and dying (F54)	How much do you worry about death?	108	27	0.974
	How much bothered are you by the thought of not being able to die the way you would want to?	97	38	
	How much concerned are you about how and where you will die?	104	31	
	How much preoccupied are you about suffering before dying?	94	41	
	Perception score, mean±SD	1.945±0.932	1.958±1.144	
HRQoL	How satisfied are you with your health?	115 (85.2)	20 (14.8)	**0.001***
	How would you rate your quality of life?	101 (74.8)	34 (25.2)	
	Perception score, mean±SD	4.147±0.647	1.583±0.376	

*$P<0.05$ calculated at 95% CI was considered statistically significant and is depicted in bold. Interpretation: HRQoL Perception Scale: Not at all-moderately (score - 3–5); Very much-highly (score - 1–2); Score 1 - Not at all; Score 2 - A little; Score 3 - A moderate amount; Score 4 - Very much and Score 5 - An extreme amount. A score of 5 indicates low, negative perceptions and score 1 indicates high, positive perception for facets F50, F51, and F52. The scoring was in reverse order for facets F53 and F54 and overall HRQoL. HRQoL: Health-related quality of life, HIV: Human immunodeficiency virus, SD: Standard deviation, CI: Confidence interval

Table 4: Sociodemographic and clinical variables for respondents with good or poor Health Related Quality of Life

Variables	Total number of cases (*n*=135)	Number of cases		Pearson's Chi-squared test significance level (α)	*P**
		Good HRQoL	Poor HRQoL		
Gender					
Males	72	68	4	0.499	0.503
Females	63	61	2		
Age (years)					
≤40	47	44	3	0.638	0.424
>40	88	85	3		
Education status					
Middle school or less	57	55	2	0.116	0.733
High school or more	78	74	4		
Marital status					
Married	76	73	3	0.101	0.750
Others	59	56	3		
Duration of disease (years)					
>5	81	77	4	0.116	0.733
≤5	54	52	2		
Disclosure status					
To family members/spouses	132	126	6	0.905	0.636
To none	3	3	0		
Route of infection					
Heterosexual contact	116	111	5	0.035	0.852
Others	19	18	1		
Duration of ART (years)					
>3	104	104	0	2.371	0.124
≤3	31	25	6		
Latest CD4 + cell counts (cells/µL)					
≤200	14	8	6	0.727	0.394
>200	121	115	0		

*p<0.05 calculated at 95% CI was considered statistically significant. The results were interpreted as variables having statistically significant association (*p*≤α) or variables having no statistically significant association (*p*>α). ART: Antiretroviral therapy, HRQoL: Health-Related Quality of Life, CI: Confidence interval

CONCLUSION

Regular ART can result in adequate control of immunosuppression and no comorbidities in the majority of PLWHA, good family support and social acceptance, and adequate financial security can result in overall good HRQoL in all six domains within the WHOQOL-HIV BREF. The significance of counseling for adherence to ART is emphasized to achieve a good HRQoL among PLWHA. Our observations also reflect the level of their satisfaction with health-care services and the level of counseling provided at ART centers in the state. The study is limited by its cross-sectional study design and small sample size.

Conflicts of interest

There are no conflicts of interest.

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