



FACTORS INFLUENCING QUALITY OF LIFE AMONG PEOPLE LIVING WITH HIV ON ANTIRETROVIRAL THERAPY

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Abstract

Quality of life (QOL) is an important outcome indicator in the management of people living with HIV (PLHIV), particularly in the era of long-term antiretroviral therapy (ART). Although advances in ART have substantially improved survival rates, social and clinical determinants continue to influence overall well-being. The present study aimed to compare QOL between HIV-positive individuals and healthy controls and to examine the influence of socio-demographic and clinical variables on QOL among PLHIV. A cross-sectional study was conducted among 100 HIV-infected individuals who were already receiving treatment at the ART Centre, Sir Sundar Lal Hospital, Banaras Hindu University, Varanasi, India. Additionally, 40 healthy individuals were included as a control group for comparison. The quality of life of the participants was assessed using the Hindi version of the WHOQOL-BREF questionnaire. Independent *t*-test was used to examine differences in the domains of quality of life based on HIV status and selected bio-socio-demographic characteristics. The findings showed that individuals living with HIV had significantly lower QOL scores across all four domains compared to the control group. Within the HIV-positive group, age was significantly associated with the Environment domain, with participants aged ≥ 35 years reporting better scores. Male gender, urban residence, and employment were significantly associated with higher QOL across domains. Marital status was significantly related to the Psychological and Social Relationship domains, while higher educational status was associated with better Environment domain scores. Clinically, longer duration of ART (≥ 3 years) and higher CD4 counts (≥ 450 cells/mm³) were associated with significantly better Physical and Psychological QOL. Overall, the findings indicate that both social determinants and clinical stability play a crucial role in shaping QOL among PLHIV, underscoring the need for comprehensive, psychosocially integrated HIV care.

Keywords: HIV, quality of life, antiretroviral therapy, CD4 count, socio-demographic factors, PLHIV

Introduction:

The widespread and long-term use of combination antiretroviral therapy has changed the course of HIV infection dramatically. What was once considered a life-threatening disease is now treated as a

manageable chronic condition, and the life expectancy of people living with HIV is getting closer to that of the general population. Because of this improvement in survival, quality of life has become an especially important concern for an individual living with HIV. Quality of life (QoL) simply refers to how a person feels about their life as a whole. It includes their sense of happiness, comfort, satisfaction, and how fulfilled they feel in their daily activities. The World Health Organization (1995) describes QoL as an individual's perception of their position in life, shaped by the culture and value systems they live in, and in relation to their personal goals, expectations, standards, and concerns. This view of QoL takes into account not only physical health, but also psychological well-being, social relationships, environmental conditions, and spiritual aspects of life. Quality of life among people living with HIV (PLHIV) continues to be affected by multiple factors related to the illness itself, psychological well-being, and socio-cultural circumstances. Several studies assessing the QoL of HIV-positive individuals have demonstrated that socio-demographic characteristics, such as age (liu, Johnson, Ostrow, Silvestre, Visscher, & Jacobson, 2006; Molassiotis, Callaghan, Twinn, & Lam, 2001), gender (Griffin, Rabkin, Remien & Williams, 1998; Mrus, Isler, Banks, Sengupta, & Corbie-Smith, 2005; Starace, et al., 2002), marital status (Nojomi, Anbary, & Ranjbar, 2008), education (Murri et al., 2003; Wachtel, Piette, Mor, Stein, Fleishman, & Carpenter, 1992), income (Wig, Lekshmi, Pal, Ahuja, Mittal, & Agarwal, 2006), employment status (liu et al., 2006; Nojomi, Anbary, & Ranjbar, 2008) and disease related variables such as disease stage (Griffin, Rabkin, Remien & Williams, 1998; Lubeck & Fries, 1997), opportunistic infection (Basavaraj, Navya, & Rashmi, 2010), CD4 count (Nirmal, Divya, Dorairaj & Venkateswaran, 2008) as well as the use of highly active antiretroviral therapy (HAART) (Liu et al., 2006) and side effect of these treatments (Burgoyne & Tan, 2008), were reported to have a significant impact on the quality of life of PLWHA. But, there is a great variability in the reported findings regarding these relationships.

Since the pattern and spread of HIV vary across different regions of India, the population of people living with HIV is socio-demographically diverse. A better understanding of the factors that affect their quality of life can help in shaping more effective and context-appropriate policies and programs. In this context, the present study was conducted to assess the quality of life among people living with HIV and to examine the influence of socio-demographic and clinical variables on the QOL of PLHIV.

Methodology:

Sample :

This was a cross-sectional study conducted among 100 HIV-positive individuals enrolled at the ART Centre, Sir Sundar Lal Hospital, Banaras Hindu University, Varanasi. The inclusion criteria were: (1) receiving Antiretroviral Therapy (ART) for at least six months (3) age 18 years or above (4) no history of drug abuse or alcoholism (6) no history of psychiatric disorders (7) no history of cognitive impairment. Additionally, 40 healthy controls were included in the study. These comprised primary caregivers of the patients and paramedical staff working at the same centre.

Tools: The following standardized tools have been selected to achieve the above mentioned objectives.

Socio-demographic Datasheet:

A self design structured questionnaire was used to collect socio-demographic information such as age, gender, marital status, education, occupation, family income, and Urban/Rural as well as information about participants' illness background, such as CD4 count, no of years of taking medicine.

Quality of Life Inventory (Saxena, 1996):

The WHOQOL-BREF, adapted into Hindi by Saxena (1996), is a brief, self-report measure used to assess an individual's quality of life. It is a shortened version of the WHOQOL-100 and contains 26 items. Out of these, 24 items assess four key areas of life: physical health, psychological well-being, social relationships, and environmental conditions. The remaining two items focus on overall

satisfaction with health and overall quality of life. Each item is rated on a five-point Likert scale, where higher scores reflect a better perceived quality of life.

Ethical approval

The ethical review committee of the Institute of Medical sciences, Banaras Hindu University, Varanasi, India had approved the study.

Result and Discussion

The average age of the people living with HIV/AIDS (PLHAs) in the study was 36.30 years (SD = 6.72). Most of the participants were men (64%), and they were almost evenly distributed between rural (52%) and urban (48%) areas. Nearly half of them (47%) had been on treatment for more than three years, and a large majority (81%) was married. About two-thirds of the participants (67%) had studied up to high school or below, and nearly 46% were unemployed. Around half of the participants reported a monthly income of ₹5000 or less, and 48% had CD4 cell counts above 450, indicating relatively better immune status among nearly half of the sample.

An independent samples *t*-test was conducted to compare the quality of life (QOL) between the HIV-positive and normal controls. The results table 1 showed that individuals living with HIV had significantly lower scores in the physical domain, psychological domain, environmental domain, and social relationship domain, than their normal control group. Overall, the findings indicate that individuals living with HIV experience poorer quality of life compared to those without HIV.

Table 1: Comparison of QOL Domains between individuals with HIV and normal controls

QOL Domain	Group	N	Mean	SD	t value
Physical QOL	HIV	100	23.82	4.63	5.85***
	Normal Control	40	28.55	4.18	
Psychological QOL	HIV	100	19.78	5.50	4.03***
	Normal Control	40	23.37	4.44	
Environmental Factor	HIV	100	26.76	4.67	1.96*
	Normal Control	40	28.55	4.94	
Social Relationship	HIV	100	9.27	2.24	4.29***
	Normal Control	40	10.95	2.02	

*** $p < 0.001$; $p < 0.05$

These findings are in line with earlier studies showing that people living with HIV tend to have a lower health-related quality of life than the general population, even in the era of effective antiretroviral therapy. For instance, Hays et al. (2000) found that individuals with HIV reported poorer physical and mental health compared to those without HIV. Similarly, Miners et al. (2014) noted that, despite advances in treatment, people living with HIV continued to experience reduced quality of life when compared to the general population. The lower physical health scores among individuals living with HIV may be related to the long-term nature of the illness, treatment side effects, and recurring health concerns that can affect everyday activities. In the psychological domain, the lower scores may reflect the emotional strain of living with the condition, including feelings of anxiety, depression, and stigma. The slightly lower environmental scores may point to challenges such as limited financial resources, housing difficulties, or barriers in accessing healthcare and transportation. Similarly, lower scores in the social domain may be influenced by stigma, fear of disclosure, and reduced social support, which can affect relationships and overall well-being.

Table 2 presents the influence of socio-demographic characteristics and clinical factors on the domains of quality of life of people living with HIV. Age was not significantly associated with the Physical, Psychological, or Social Relationship domains. However, a statistically significant difference was observed in the Environment domain, with participants aged ≥ 35 years reporting

better environmental QOL scores. Previous research has reported mixed findings regarding age and QOL. For instance, Wig et al. (2006) suggested that older individuals may demonstrate better psychological adjustment due to more developed coping strategies, whereas Zimpel and Fleck (2007) observed that younger patients sometimes report better overall QOL. Gender differences were evident across all four domains, with male participants reporting significantly higher QOL scores than females. This finding is consistent with Tesfaye et al. (2015), who reported lower QOL among women living with HIV, particularly in psychological and environmental domains. These disparities are often attributed to socioeconomic disadvantages, caregiving burdens, stigma, and gender-based inequalities that disproportionately affect women.

Table 2: Factors influencing various domains of Quality of Life

Bio-Social Characteristic			Physical Domain		Psychological Domain		Social Relationship Domain		Environment Domain	
Variables		N	Mean±SD	t value	Mean±SD	t value	Mean±SD	t value	Mean±SD	t value
Age	<35	46	23.41±5.01	.79	18.78±5.48	1.68	9.06±2.43	.82	25.76±4.67	1.99*
	≥35	54	24.16±4.29		20.62±5.42		9.44±2.08		27.61±4.54	
Gender	Female	36	22.47±4.50	2.22*	17.69±5.09	2.95**	8.83±1.87	2.17	24.78±4.74	3.34**
	Male	64	24.58±4.57		20.95±5.41		9.52±2.41		27.88±4.29	
Residence	Urban	48	25.00±4.27	2.52*	21.27±5.44	2.67**	9.95±2.25	3.05*	28.27±4.84	3.22**
	Rural	52	22.73±4.72		18.40±5.23		8.63±2.05		25.36±4.08	
Employment Status	Employed	54	25.33±4.23	3.74**	21.64±4.75	3.89**	9.88±1.96	3.06*	27.94±4.55	2.84**
	Unemployed	46	22.04±4.49		17.58±5.55		8.54±2.35		25.36±4.4	

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Family Income	<5000	51	23.92±4.87	.22	19.68±5.53	.17	9.15±2.03	.51	26.05±4.00	1.53
	≥5000	49	23.71±4.42		19.87±5.52		9.38±2.46		27.48±5.22	
Marital Status	Married	81	23.97±4.81	.80	20.40±5.61	2.90**	9.60±2.18	3.46*	26.97±4.68	.95
	Others	19	23.15±3.78		17.10±4.14		7.84±1.95		25.84±4.63	
Educational Status	Upto High School	67	23.41±4.78	1.28	19.08±5.61	1.87	8.98±2.23	1.84	26.02±4.19	2.10*
	Above High School	33	24.63±4.32		21.18±5.07		9.84±2.18		28.24±5.28	
Duration of Treatment	<3 Year	53	22.86±4.74	2.23*	18.50±5.09	2.50*	8.90±2.08	1.72	26.01±4.62	1.69
	≥3 Year	47	24.89±4.30		21.21±5.64		9.68±2.36		27.59±4.63	
CD4 Counts	<450	52	22.80±4.56	2.32*	18.61±5.45	2.25*	9.01±2.13	1.15	25.88±4.30	1.96
	>450	48	24.91±4.50		21.04±5.32		9.54±2.35		27.70±4.91	

***p<0.001;**p<0.01;p<0.05

Residence and employment status also showed strong associations with QOL. Urban residents and employed participants demonstrated significantly higher mean scores across Physical, Psychological, Social Relationship, and Environment domains compared to rural residents and unemployed individuals. Similar findings were reported by Shanmugasundaram et al. (2014), who highlighted that better healthcare access, transportation, social support systems, and economic opportunities in urban settings contribute positively to QOL among PLHIV. Employment likely enhances financial security, promotes social participation, and improves treatment adherence,

thereby strengthening overall well-being. Marital status was significantly associated with the Psychological and Social Relationship domains. Comparable findings were reported by Stangl et al. (2007), suggesting that marital and partner support can buffer stress, reduce stigma, and enhance emotional stability. Educational status was significantly associated with the Environment domain, with participants educated above high school reporting better scores. Higher education may improve health literacy, awareness of treatment options, resource accessibility, and adaptive coping. Basavaraj et al. (2010) similarly demonstrated that education significantly influences environmental and psychological aspects of QOL.

Regarding clinical variables, participants who had been on antiretroviral therapy (ART) for ≥ 3 years reported significantly better physical and psychological QOL compared to those on treatment for a shorter duration. Sustained treatment may reduce symptom burden, improve physical functioning, and enhance psychological stability over time. Additionally, participants with a CD4 count ≥ 450 cells/mm³ had significantly better Physical and Psychological domain scores, although no significant differences were observed in Social Relationship and Environment domains. These findings align with Harding et al. (2014), who reported improved QOL among individuals with sustained ART adherence and higher CD4 counts, likely reflecting immune recovery and improved health status.

Overall, the findings reinforce that both social determinants and clinical stability play essential roles in shaping QOL among PLHIV. Comprehensive HIV care should therefore integrate psychosocial, economic, and gender-sensitive interventions alongside medical management.

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