

## Original Research Article

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# Assessment of quality of life among HIV infected people on antiretroviral therapy in a tertiary hospital, Karnataka

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## ABSTRACT

**Background:** With the availability of highly effective antiretroviral treatment, HIV is transforming into a chronic condition, whose management is now experiencing problems of other chronic diseases, where quality of life (QOL) has become an important component of overall assessment of health care and management. This study was conducted with the objective of assessing the QOL and factors influencing it in HIV infected people on antiretroviral therapy (ART).

**Methods:** A cross-sectional study was conducted at district ART center, Hassan. Purposive sampling was used to identify 148 HIV infected people on antiretroviral therapy, who were interviewed using a pretested questionnaire, assessing QOL with the World Health Organization (WHOQOL) HIV-BREF.

**Results:** The average age of the study population was 37.69 years. Majority of them were males 54.7% compared to 45.3% of females. Most of them resided in rural areas (87.8%). The educational status of the subjects was poor with 33.8% of them being illiterates. The mean score was highest for spirituality and social relationships domain and least for psychological domain. Age, education and socioeconomic status did not have any influence on the QOL. There was significant difference between QOL scores and clinical stages. Individuals in stage I and II had better scores compared to stage 3 and 4. QOL scores decreased with decreasing CD4 count.

**Conclusions:** Our findings suggest that patient-reported measures of health status and related concepts may help provide a feasible, reliable and valid method to assess the impact of HIV/AIDS improve patient outcomes.

**Keywords:** HIV, AIDS, ART, Quality of life

## INTRODUCTION

Government of India strengthened its strategy of controlling the HIV/AIDS by extending provision of treatment to each and every person with HIV, irrespective of their clinical stage or immunity.<sup>1</sup> This universal access to comprehensive care aims to further strengthen the fight against AIDS. However, it remains to be seen whether

this has successfully transformed the QOL of PLHA or not.

QOL refers to a patient's perception that their current level of functioning is satisfactory. This construct is multifactorial in nature. QOL encompasses not only emotional well-being and functioning, but perceptions of physical well-being (e.g. activity level, pain and general health perceptions) as well.<sup>2</sup>

QOL in persons living with HIV/AIDS is a salient issue in care and management. Long term care of human HIV/AIDS cases has raised the QOL issues. The ultimate goal for treatment is not only to promote longevity but also to enhance QOL.<sup>3</sup> The social stigma attached with the proclamation of HIV sero-positivity may at times force the individual to change the job or the place of living, putting further stress on the already weak economic situation. This further leads to progressive deterioration of health, low morale, repeated consultation, abstinence from work and low productivity. The vicious cycle thus goes on, economic deprivation and social isolation takes its toll on the quality of life.<sup>4</sup>

QOL measures are increasingly used to supplement objective clinical or biological measures of disease to assess the quality of service, the need for health care, the effectiveness of interventions and in cost utility analyses.<sup>5</sup> While extension of ART provisioning is laudable, due attention to QOL will further enhance the HIV/AIDS care that PLHA deserve.

## METHODS

A cross-sectional study was conducted between March and April 2021. A convenient sample of 148 PLHIV coming for follow-up counseling at ART center, Hassan institute of medical sciences were selected for the study. Every 5th patient visiting the ART centre during the study period was approached and upon giving the consent was included in the study. Children below 18 years of age, individuals taking post exposure prophylaxis and those unwilling to participate in the study were excluded. Prior informed written consent was taken from all the patients included in the study.

A structured questionnaire was used to collect information about the sociodemographic variables. QOL was measured using the WHOQOL-HIV BREF instrument (transliterated to Kannada the local language) a 31-item scale that assesses QOL of PLHIV in six domains that is, physical QOL, psychological QOL, independence, social relationships, environment quality of life and spirituality/religion/personal beliefs. Overall scores range between 31 (minimum) and 155 (maximum). Higher the score, better the QoL.<sup>2</sup> The scale was validated at various setting across the globe including India.

All patients under the study were personally interviewed and administered the questionnaire. All the information collected was based on patient's self-report, but the information related to CD4 count and clinical staging were obtained from the medical records.

Data analyses were performed using SPSS v20. Descriptive univariate statistics such as frequencies and percentages were used for categorical variables and

means (M) and standard deviations (SD) were used for continuous variables. Differences in mean levels of QOL between categories of dichotomous variables were assessed using t-test. One-way analysis of variance (ANOVA) was used for multicategory variables. LSD was used as the post-hoc test between group comparisons in case of a significant overall f value.

## RESULTS

The average age of the study population was 37.69 years with a standard deviation of 9.39 years. There was a predominance of younger age group between 26-35 years (37.8%) and those aged >55 years were the least (4.1%). Majority of them were males 54.7% compared to 45.3% of females. And most of them resided in rural areas (87.8%). More than 70% of them were married and among the married 53.8% of them had HIV positive partners (self-reported). The proportion of widowed subjects was 20.9% and most of them were females 16.2%.

The educational status of the subjects was poor with 33.8% of them being illiterates followed by primary (31.1%) and high school (19.6%) levels and a very few graduates. The level of education was higher among males compared to females. So also the urban population compared to rural. Majority of them worked as a daily wage labourer that is, unskilled worker (48.6%) and (37.8%) were unemployed (Table 1).

The mean QOL scores (0-100) was calculated for all, one overall score and the six domains of the WHOQOL-BREF version questionnaire. The mean score was highest for spirituality and social relationships domain followed by physical domain, level of independence and environment domain. The score was least for psychological domain (Table 2).

The overall QOL score was almost same for both males and females. Males had higher scores for physical ( $p=0.379$ ), level of independence ( $p=0.591$ ) and environmental domain ( $p=0.796$ ) whereas females had better scores for psychological ( $p=0.807$ ), social relationships ( $p=0.949$ ) and spirituality ( $p=0.770$ ) domains. Females had higher scores compared to males in all the domains except for social relationships and level of independence but the difference was not significant. The difference between QOL scores in different age groups was also not found to be significant (ANOVA).

To determine whether education and socioeconomic status had any influence on the QOL, ANOVA was used to test the mean difference between the scores among different groups of educational status. Likewise, the influence of socioeconomic status was also tested. It was found that educational and socioeconomic status did not have any influence on the QOL.

**Table 1: Distribution of study population by socio-demographic characteristics.**

Variables	Grouping	N (%)	N (%)	Total N (%)
		Female	Male	
<b>Gender</b>		67 (45.3)	81 (54.7)	148 (100)
<b>Age (in years)</b>	18-25	12 (8.1)	4 (2.7)	16 (10.8)
	26-35	26 (17.6)	30 (20.3)	56 (37.8)
	36-45	16 (10.8)	33 (22.3)	49 (33.1)
	46-55	12 (8.1)	9 (6.1)	21 (14.2)
	>55	1 (0.7)	5 (3.4)	6 (4.1)
	Total	67 (45.3)	81 (54.7)	148 (100)
<b>Residence</b>	Rural	58 (39.2)	72 (48.6)	130 (87.8)
	Urban	9 (6.1)	9 (6.1)	18 (12.2)
	Total	67 (45.3)	81 (54.7)	148 (100)
<b>Marital status</b>	Married	40 (27)	64 (43.2)	104 (70.3)
	Single	0 (0)	10 (6.8)	10 (6.8)
	Widowed	24 (16.2)	7 (4.7)	31 (20.9)
	Divorced	1 (0.7)	0 (0)	1 (0.7)
	Separated	2 (1.4)	0 (0)	2 (1.4)
	Total	67 (45.3)	81 (54.7)	148 (100)
<b>Education</b>	Illiterate	24 (16.2)	26 (17.6)	50 (33.8)
	Primary school	22 (14.9)	24 (16.2)	46 (31.1)
	Middle school	5 (3.4)	9 (6.1)	14 (9.5)
	High school	12 (8.1)	17 (11.5)	29 (19.6)
	Graduate	4 (2.7)	5 (3.4)	9 (6.1)
	Total	67 (45.3)	81 (54.7)	148 (100)
<b>Occupation</b>	Unemployed	47 (31.8)	9 (6.1)	56 (37.8)
	Unskilled worker	20 (13.5)	52 (35.10)	72 (48.6)
	Semiskilled worker	0 (0)	10 (6.8)	10 (6.8)
	Skilled worker	0 (0)	4 (2.7)	4 (2.7)
	Clerical, shop owners, farm owners	0 (0)	6 (4.1)	6 (4.1)
	Total	67 (45.3)	81 (54.7)	148 (100)
<b>Socioeconomic class (B.G. Prasad's classification)</b>	Class II	5 (3.4)	13 (8.8)	18 (12.2))
	Class III	23 (15.5)	23 (15.5))	46 (31.1)
	Class IV	27 (18.3)	32 (21.7)	59 (39.9)
	Class v	12 (8.2)	13 (8.8)	25 (16.9)
	Total	67 (45.3)	81 (54.7)	148 (100)

**Table 2: Mean QOL scores.**

	N	Minimum	Maximum	Mean
<b>QOL overall score</b>	148	8	32	31.9071
<b>Physical domain</b>	148	20	72	46.2457
<b>Psychological domain</b>	148	25.6	60.8	44.0457
<b>Level of independence</b>	148	20	60	44.9143
<b>Social relationships</b>	148	36	60	48.4
<b>Environment</b>	148	34	64	44.5714
<b>Spirituality/religion/personal beliefs</b>	148	32	72	48.4143

**Table 3: Comparison of mean QOL score with the clinical stages.**

	Stage I	Stage II	Stage III	Stage IV	Total	F	df	P value
<b>QOL overall score</b>	N	11	85	48	3	148	25.435	3.13 6 <0.01
	Mean	24	22.9756	20.0682	12	21.9071		
	Standard deviation	1.78885	2.7976	2.8317	4	3.4221		

		Stage I	Stage II	Stage III	Stage IV	Total	F	df	P value
Physical domain	N	11	85	48	3	148	27.941	6	<0.01
	Mean	55.6364	49.0732	39.8727	28	46.2457			
	Standard deviation	7.03239	6.97222	7.62653	10.5830	9.12287			
Psychological domain	N	11	85	48	3	148	13.027	6	<0.01
	Mean	48.5818	45.4537	41.1091	32	44.0457			
	Standard deviation	4.70698	5.31869	6.08826	6.4	6.22847			
Level of independence	N	11	85	48	3	148	21.512	6	<0.01
	Mean	51.2727	47.0244	40.4545	29.3333	44.9143			
	Standard deviation	4.31488	6.04709	6.46801	8.32666	7.34503			
Social relationships	N	11	85	48	3	148	5.542	6	<0.01
	Mean	51.6364	49.2195	46	49.3333	48.4			
	Standard deviation	3.77552	4.89652	5.62387	8.32666	5.30617			
Environment	N	11	85	48	3	148	7.329	6	<0.01
	Mean	47.2727	45.439	42.7273	38	44.5714			
	Standard deviation	2.41209	4.08882	5.19554	4	4.66603			
Spirituality/religion/personal beliefs	N	11	85	48	3	148	7.578	6	<0.01
	Mean	56.3636	49.0244	45.5909	44	48.4143			
	Standard deviation	7.25635	6.82945	7.40307	8	7.5503			

Table 4: Changes in mean QOL scores depending on CD4 count.

		CD4 count (mm <sup>3</sup> )				Total	F	df	P value
		Not significant >500	Mild 350-499	Advanced 200-349	Severe <200				
QOL overall score	Mean	27.2593	26.0541	27.5294	26.4615	26.8468	0.606	3,107	NS
	Standard deviation	4.57916	5.13131	4.9984	5.547	4.98397			
Physical domain	Mean	56.8889	53.4054	54.2353	51.076	54.2342	1.146	3,107	NS
	Standard deviation	8.61722	10.33726	10.8852	9.4026	10.0426			
Psychological domain	Mean	50.0296	47.6865	48.1529	48.9231	48.5441	0.615	3,107	NS
	Standard deviation	6.6146	6.99024	7.826	6.62799	7.09597			
Level of independence	Mean	51.4074	49.4054	48.5882	47.6923	49.4414	1.166	3,107	NS
	Standard deviation	6.81209	6.40945	7.63611	6.82379	6.96574			
Social relationships	Mean	50.5185	49.2973	50.1176	48.3077	49.7297	0.508	3,107	NS
	Standard deviation	7.02945	4.8124	6.39964	5.76461	5.97258			
Environment	Mean	46.1481	45.8378	44.7647	44.7692	45.4595	0.633	3,107	NS
	Standard deviation	5.40444	4.22633	4.32091	4.7985	4.60787			
Spirituality/religion/personal beliefs	Mean	52.5185	51.4054	51.1765	50.7692	51.5315	0.218	3,107	NS
	Standard deviation	6.55374	8.12219	7.61367	8.85206	7.61795			

NS= Not significant.

There was significant difference between QOL scores and clinical stages for all the domains as well as for overall score. Individuals in stage I and II had better scores

compared to stage 3 and 4. ANOVA was used to test the mean difference between the scores and LSD was used to determine which of the group was significant (Table 3).

QOL scores decreased with decreasing CD4 count for all the domains but the difference was not statistically significant (Table 4).

## DISCUSSION

The average age of the study population was 37.69 years. This is similar to other studies 3-8 done in India where the average age of HIV infected population ranged from 35-37 years. The proportion of males (54.7) was greater than females (45.3) in this study which again is similar to other studies and reflects the HIV situation in India.<sup>1</sup> Majority of them were from rural areas and belonged to the low socioeconomic group. This maybe because the study setting was a government set-up with free availability of drugs where there is a predominance of rural people with low socioeconomic status which was also observed in similar study settings.<sup>3-8</sup> The educational status was poor with 34% being illiterates and unemployment was present in 37% of the population which is similar to the other studies done in India and other developing countries.<sup>10-13</sup> This maybe partly due to low literacy levels and partly due to their HIV status. Most of the subjects (70.3%) were married and among them around 54% of them had HIV positive partners (self-reported). The proportion of widowed subjects was 20.9%.

QOL is often regarded as a concept that is not precise enough to be measured reliably with a structured questionnaire and is subject to variability across cultures and individuals to have any useful validity. However, WHOQOL questionnaire developed in the WHOQOL project demonstrated that QOL could be conceptualized and defined in a uniform way across cultures. And WHOQOL-HIV has been used widely and performs very well in HIV/AIDS population. In assessment of QOL in the present study, the mean score was highest for spirituality and social relationships. Social domain assesses personal relationships, social support and sexual activity whereas spirituality domain assesses forgiveness, blaming and concerns about future. The higher QOL scores here reflect the presence of good personal relationships and social support. In a cross-sectional study assessing the impact of HIV/AIDS on quality of life by Navneet et al in north India they found that the QOL score was highest for social domain similar to this study.<sup>4</sup> The higher QOL score for spiritual domain reflects a positive attitude towards the future which may be due to their belief in the present treatment. The lowest score in our study was for psychological domain which assesses negative feelings, self-esteem and body image. This was probably because of the burden and stigma associated with HIV status. This was consistent with the findings by Marashi et al who assessed the quality of life in HIV/AIDS patients taking ART in Delhi and so also in Ghana.<sup>5,13</sup> It has been found that HIV/AIDS affects mental health as evidenced by some studies.<sup>8,14-17</sup> The environment and level of independence domains also had comparatively lower scores in the present study which can be attributed to their rural background and low

economic status in most of the study population similar to findings by Alvi et al in Aligarh.<sup>7,13</sup> This was in contrast to the findings by Nirmal et al in Chennai where the score for environmental domain was the highest.<sup>3</sup> This may be due to different study settings.

Though there was no significant difference in scores between males and females, females had better scores than males in all the domains except for social relationships. This was unlike other studies where males had greater scores than females.<sup>3,9</sup> But Marashi et al also found females to have better scores than males which were not significant similar to this study.<sup>5</sup> The lower scores for females in social relationship were probably because most of them were widowed. It was found in this study that educational status had no influence on QOL which was inconsistent with other studies where higher educational status was associated with greater QOL scores.<sup>3-7</sup> Higher socioeconomic status was associated with increase in the scores but was significant for only level of independence domain similar to findings by Navneet et al and Elisabete et al but some studies in north India showed significant association.<sup>7-9,14</sup>

Improvement in clinical status was found to be significantly associated with higher QOL scores for all the domains which were consistent with other studies.<sup>6,8,12,16</sup> Liuc et al found that ART improved QOL for short term but did not have long term effects.<sup>18</sup> Although low QOL scores was associated with lower CD4 counts unlike other studies, there was no statistically significant association between them.<sup>4,9,10,20-23</sup>

## Limitation

The limitation of the study was that the sampling method used was purposive sampling where all study subjects who visited the ART centre during the study period were selected

## CONCLUSION

This study also showed that a relationship exists between QOL with socio-demographic variables, economic and clinical factors. Improvement in clinical and immunological status had a positive influence on the QOL. In addition, providing good family support, better employment opportunities and reducing stigma could increase levels of QOL of PLHA. Our findings suggest that patient-reported measures of health status and related concepts may help provide a feasible, reliable and valid method to assess the impact of HIV/AIDS and future management interventions to improve patient outcomes.

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