



Original Research Article

Health Related Quality Of Life of Patients Attending Link Art Centres In Haryana, In Relation To Their BMI and CD4 Counts

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ABSTRACT

Objectives: This was a cross-sectional study to evaluate the health related quality of life of patients attending link ART centres in Haryana, in relation to their BMI and CD4 counts.

Materials and methods: It was a cross sectional study done in 500 patients attending the link ART centres at Ambala, Hisar and Bhiwani, after approval of Institutional Ethics Committee. Quality of life was assessed using WHOQOL BREF questionnaire during the period of January 2013 to December 2013. Statistical analysis was done using SPSS version 21.

Results: Mean scores of physical and psychological domain were maximum in those patients whose BMI was $>22.9 \text{ kg/m}^2$ and whose CD4 counts were >500 (physical domain- 52.89 ± 8.628 , psychological domain- 51.66 ± 12.799). Mean scores of social domain were maximum in patients with CD4 counts 250-500 (61.49 ± 18.520). Mean scores of environmental domain were highest (62.18 ± 14.154) in patients whose CD4 counts were 250-500 but results were not statistically significant. No significant association was seen between BMI and social and environmental domains.

Conclusion: It is concluded from the study that BMI and CD4 counts have more effect on Physical and Psychological domains.

Keywords: HIV, AIDS, Health related quality of life, CD4 counts, BMI

INTRODUCTION

AIDS has a chronic debilitating course and the long-term adverse effects of current treatment modalities are uncertain. The social stigma attached with HIV may at times force the individual to change the job or the place of living which may put 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 tolls on the quality of life. [1]

The increasing pandemic of HIV/AIDS at present is a major global concern and a significant development issue. With the recent advances in clinical tests and treatments for those suffering from HIV/AIDS, though the survival of these patients has been increased but their quality of life has become an important focus for

researchers and healthcare providers. Many of these patients struggle with numerous social problems such as stigma, poverty, depression, substance abuse, and cultural beliefs which can affect their quality of life not only from physical health aspect, but also from mental and social health point of view and cause numerous problems in useful activities and interests of the patients. [2]

Quality of life is a term that is popularly used to convey an overall sense of well-being and includes aspects such as happiness and satisfaction with life as a whole. According to the World Health Organization, [3] Quality of life (QOL) is defined as individuals' perceptions of their position in life in the context of the culture and value systems in which they live and in relation to their goals, expectations, standards and concerns. This definition reflects the view that quality of life refers to a subjective evaluation which is embedded in a cultural, social and environmental context.

Multiple clinical manifestations of HIV infection may contribute to reduced HRQOL. Foremost among these is malnutrition. Body cell mass has been shown to correlate adversely with QOL, independent of the CD4 cell count. The QOL dimension that best correlates with nutritional depletion is decreased functional performance. [4] It has also been observed that nearly 20% patients reach ART centres at a very late stage (CD4 count <50), when the risk of mortality is nearly 2-3 times higher. CD4 T-cell count less than 500 increases chances of opportunistic infections and hence are associated with physical limitations and disability. [5]

So, both BMI and CD4 counts can affect the quality of life independently and to evaluate their effect on quality of life we designed this cross sectional study.

MATERIALS AND METHODS

This was a cross-sectional study and was conducted in Link ART Centres of Haryana. There are 17 Link ART Centres out of which 03 centres were chosen which were Ambala, Hisar and Bhiwani.

Study population: HIV positive patients registered in the chosen Link ART centres.

Exclusion criteria: Patients aged less than 15 years and patients who were not willing to participate.

Study period: The study was done during the period of January 2013 to December 2013.

Sample size: A sample size of 500 was taken. There were 170-200 patients enrolled in each Link ART Center. Hence, all patients (>15 years of age) reporting to the study centre during the period of study were included till the completion of required sample size.

Study tool: Quality of life was evaluated using the World Health Organization Quality of life (WHOQOL) Brief instrument. [3]

The WHOQOL Brief consists of 26 items. Each item uses a Likert-type five-point scale. These items are distributed in four domains. The four domains of QOL are,

- (a) **Physical health** and level of independence (seven items assessing areas such as presence of pain and discomfort; dependence on substances or treatments; energy and fatigue; mobility; sleep and rest; activities of daily living; perceived working capacity);
- (b) **Psychological well-being** (eight items assessing areas such as Affect, both positive and negative self-concept, higher cognitive functions; body image and spirituality),
- (c) **Social relationships** (three items assessing areas such as social contacts, family support and ability to look after family; sexual activity) and

(d) **Environment** (eight items assessing areas such as freedom; quality of home environment; physical safety and security and financial status; involvement in recreational activity; health and social care: quality and accessibility).

There are also two items that are examined separately: one which asks about the individual's overall perception of QOL and the other which asked about the individual's overall perception of his or her health. Domain scores are scaled in a positive direction (Higher scores denote higher quality of life). The scores thus obtained were added for each domain and further transformed to a new score which ranged from 0 (minimum) to 100 (maximum), with a higher score indicating better quality of life, for every domain separately.

Statistical analysis: The data was analysed using SPSS version 21. Quantitative variable i.e. pertaining to quality of life were expressed as means and Standard deviation. χ^2 Test was used to analyse qualitative variables and quality of life scores were analysed using t - test. P value <0.05 was considered to be significant.

Ethical considerations: The study was approved by Institutional Ethics Committee. The study did not impose any financial

burden on the patients. Written informed consent was taken from the study participants in Hindi or English language as per understanding of the patient. Those not willing were excluded from the study. Confidentiality was assured and maintained throughout the study.

RESULTS

As shown in table1, CD4 counts for maximum number of subjects (45.2%) were in the range of 250-500. 30.1% subjects were having CD4 counts >500 and rest 24.7% were having CD4 counts <250. Table 2 shows that mean scores of physical domain were maximum for those patients whose CD4 counts were >500 (52.89 ± 8.628) and scores decreased as the CD4 counts decreased. But, the difference was not statistically significant. Mean Scores of psychological domain were maximum for those patients whose CD4 counts were >500 (51.66 ± 12.799). The difference was statistically significant. Mean scores of social domain were maximum (61.49 ± 18.520) for the patients whose CD4 counts were between 250-500, and this difference was also statistically significant. Scores of environmental domain were highest (62.18 ± 14.154) in patients whose CD4 counts were between 250-500 but results were not significant statistically.

Table 1. Distribution of study subjects as per their CD4 counts

CD4 Count	Male	Female	Total
<250	84 (33.7%)	40 (15.8%)	124 (24.7%)
250 - 500	125 (50.2%)	102 (40.3%)	227 (45.2%)
>500	40 (16.1%)	111 (43.9%)	151 (30.1%)
Total	249 (100%)	253 (100%)	502 (100%)
Mean	349.9 ± 189.74	467.51 ± 231.02	409.1 ± 219.39

$$\chi^2 = 51.299, p < 0.001$$

Table 2. Average scores of QOL as per the CD4 counts

CD4 Count	Physical	Psychological	Social	Environmental
<250	51.04 ± 11.991	46.29 ± 11.310	52.94 ± 14.233	59.35 ± 13.897
250 - 500	50.64 ± 12.512	49.66 ± 11.906	61.49 ± 18.520	62.18 ± 14.154
>500	52.89 ± 8.628	51.66 ± 12.799	58.60 ± 17.255	59.73 ± 11.018
Total	51.41 ± 11.365	49.43 ± 12.180	58.51 ± 17.473	60.74 ± 13.261
p Value	0.155	0.001	<0.001	0.085

Table 3 shows that out of the total study subjects, the BMIs of 48.6% subjects were between 18.5 - 22.9. BMIs of 42.0% were <18.49 and rest 9.4% were having BMI in the range of 23.0 - 24.9. Table 4 shows that mean scores of physical domain were maximum for those patients who had BMI above 23.0 kg/m² (54.79 ± 9.229). The difference was statistically significant. Similar results were obtained for

psychological domain (56.21 ± 5.949). Mean scores of social domain were maximum (59.93 ± 16.843) for the patients having BMI <18.49, but this difference was not statistically significant. Scores of environmental domain were highest (61.82 ± 12.871) in patients with BMI between 18.5-22.9 but results were not significant statistically.

Table 3. Distribution of study subjects based upon their BMI

BMI (kg/m ²)	Male	Female	Total
<18.49	74 (29.7%)	137 (54.2%)	211 (42.0%)
18.5 – 22.9	160 (64.3%)	84 (33.2%)	244 (48.6%)
23.0 – 24.9	15 (6.0%)	32 (12.6%)	47 (9.4%)
Total	249 (100%)	253 (100%)	502 (100%)
Mean	19.54 ± 2.299	18.65 ± 2.816	19.09 ± 2.609

$\chi^2 = 48.603, p < .001$

Table 4. Distribution of QOL scores as per BMI of the subjects

BMI (kg/m ²)	Physical	Psychological	Social	Environmental
<18.49	52.25 ± 11.447	48.02 ± 13.669	59.93 ± 16.843	59.78 ± 13.447
18.5 – 22.9	50.05 ± 11.500	49.34 ± 11.273	57.24 ± 19.036	61.82 ± 12.871
23.0 – 24.9	54.79 ± 9.229	56.21 ± 5.949	58.68 ± 9.902	59.47 ± 14.235
Total	51.41 ± 11.365	49.43 ± 12.180	58.51 ± 17.473	60.74 ± 13.26
P Value	0.012	<0.001	0.260	0.207

DISCUSSION

In our study 24.7% subjects were having CD₄ count <250, while majority i.e. 45.2% were having CD₄ count between 250-500, 30.1% subjects CD₄ counts were >500. In a similar study done by Anand et al [6] (2012) in New Delhi 38.6% subjects' CD₄ counts were <200, 45.1% were having CD₄ counts below 201-500, while 16.3% subjects CD₄ counts were >500. The Present study showed that scores were maximum in the group where CD₄ counts were higher than 250. Physical and psychological scores were best in population where CD₄ count was >500. And all the domains were worst in the group where CD₄ count was <250. Similar result were observed in study done by Gowda et al [7] (2011) where they found that all the domains had better scores among patients with CD₄ count >350.

In our study 42% subjects were having BMI <18.49, 48.6% between 18.5-

22.9 and 9.4% were having BMI between 23.0 - 24.9. Low BMI in quite higher number of subjects proves that HIV infection affects nutritional status significantly and hence affects quality of life also as the scores for physical and psychological domains were better in patients with BMI >23 kg/m². In a similar study done by Anand et al [6] (2012) in New Delhi, 50.3% patients were having BMI <18.5, 45.1% having 18.5-22.9 and 3.3% were having 23-24.9 and quality of life scores were better for those patients whose BMI was ≥ 25 kg/m².

CONCLUSION

It is concluded from the results of this study that higher CD4 count and higher BMI of the patient had positive effect on the QOL scores.

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