

## Original Article

## Health-Related Quality of Life in Patients with HIV/AIDS

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**Background:** The present study was conducted to determine the health-related quality of life in patients living with human immunodeficiency virus or suffering from acquired immune deficiency syndrome (HIV/AIDS), referred to Behavioral Diseases Consultation Center in west of Tehran, Iran.

**Methods:** This cross-sectional study was conducted using a convenience sampling method on 139 patients living with HIV or suffering from AIDS at the first half of the year 2006. The method of data collection was summarized questionnaire of World Health Organization (WHO-QOL-Brief). The main measured outcome in this study was quality of life and some related demographic and clinical variables.

**Results:** The majority of the patients were males (88.5%) with secondary education (45.3%) and married (27.3%); the majority of them were unemployed (65.4%). The mean±SD age of the patients was 35.4±6.4 years. Gender, marital status, level of education, CD4<sup>+</sup> count, and clinical stage of the disease, had a significant effect on the quality of life of the patients. In multivariate analysis, the most important predictor of the quality of life was clinical stage of the disease.

**Conclusion:** The most important factors, association with decreased quality of life of the patients in this study, were being female, separated or divorced, having less CD4<sup>+</sup> count, and being at severe stage of the disease.

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### Introduction

The World Health Organization (WHO) defines health as a state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity. It follows that measurement of health must not only include estimates of the frequency and severity of diseases, but also well-being and quality of life. This is particularly true for patients with HIV/AIDS because of the chronic and debili-

tating nature of the illness, stigma, and a high rise of premature death.

With the recent advances in clinical tests and treatments for those suffering from HIV/AIDS, the survival of these patients has been increased and their quality of life has become an important focus for researchers and healthcare providers.<sup>1</sup>

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.<sup>2</sup>

Most studies have shown that two following factors have special importance in controlling patient's problems and their health related quality of life. They are increased treatment centers capacity, and providing multidisciplinary cares.<sup>3-6</sup>

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The results of a meta-analysis of 28 studies showed that comprehensive treatment strategies and providing various and consecutive care models including physical and mental rehabilitation services and home care can recover the disease outcome, and have a desired effect on the quality of life of these patients.<sup>7</sup>

Unless a cure is found or a life-prolonging therapy can be made more widely available, the majority of people living with HIV or AIDS will continue to suffer from the disease, with serious impact on their quality of life. For this reason, development and implementation of a reliable and valid cross-cultural quality of life measure is necessary that can be used not only to assess the physical and medical needs of HIV/AIDS people, but also their psychologic, social, environmental, and spiritual areas of life. Determination of these factors can help to select the best method of therapy and doing the best to treat these patients. Therefore, the efficacy of therapies is increased.

The objective of the present study was to examine correlations (associations) between demographic and medical variables and health-related quality of life (HRQOL) in a sample of HIV/AIDS patients referred to the Disease Behavioral Consulting Center in west of Tehran.

## Materials and Methods

This cross-sectional study was carried out using a convenient sampling method on 139 patients living with HIV/AIDS in a six-month period at the first half of the year 2006.

The inclusion criteria were age >18 years, ability of writing and reading, no severe psychiatric or cognitive problems such as mental retardation and deafness and consent of the patient for participation in the study.

The instrument used in this study was the summarized quality of life questionnaire of World Health Organization (WHO-QOL-Brief) that includes 26 questions; 24 questions cover the four main domains such as physical health, psychologic health, social function, and environmental domain. Two questions include the satisfaction of overall health.

The physical domain includes three facets: pain and discomfort; energy and fatigue; and sleep and rest. The psychologic domain includes five facets: positive feelings; negative feelings; learning and concentration; bodily image; and self-esteem. The social domain includes three facets: personal

relationship; practical social support; and sexual activity. The environmental domain includes five facets: financial resources; healthcare availability; opportunities for acquiring new information and skills; opportunities for leisure; and transport. Each facet includes between two and eight items.

Two native Persian speakers, independently, translated the questionnaire in a way that it could easily be understandable and answered. Three physicians reviewed the translations that were independently back-translated from Persian to English by another medical physician. The revised Persian version of the questionnaire was tested in a sample of 20 patients in the study and the final version was produced.

The questionnaire was filled by the patients which took 10 – 15 minutes. An educated interviewer defined the questions for the low-educated patients, if it was necessary by the same manner. A Likert type five-point scale was used for each question. The fifth choice indicates the best status (score: 4), and the first choice indicates the worst status (score: 0).

Questions about demographic and clinical variables of the patients such as clinical stage of the disease, HIV helper cell count (CD4+) counts, and way of virus transmission at the first section of the questionnaire were added.

Internal consistency reliability scale was examined using Cronbach's  $\alpha$ . Cronbach's  $\alpha$  of 0.6 or above was considered acceptable.

The average of internal consistency of the four domains of the instrument was found between 0.64 and 0.83.

The measured main outcome in this study was the quality of life which was considered as a continuous variable with ranging from zero to 104.

Association of demographic and clinical variables of the patients as independent variables with the quality of life was studied.

We used Student's *t*-test,  $\chi^2$ , one-way ANOVA, Scheffe test as the Post Hoc test, linear regression and Pearson's correlation coefficient for data analyses. Data were analyzed by the SPSS software package version 13.0 (SPSS, Inc., Chicago, IL). The significance level was set at  $P < 0.05$ .

From the ethical point of view, we considered the following points: 1) Providing a written letter by the University to Behavioral Diseases Consultation Center and obtaining the agreement of the authorities; 2) Obtaining written consent from participants; 3) Allocation of special code for

each patient in questionnaire and completion of questionnaire without name to keep the information confidential; and 4) Obtaining the required information for the study from the patients' file through their physicians and not by researchers.

## Results

The mean±SD age of the patients was 35.4±6.4 (range: 22 – 54) years. The highest frequency of the disease was found in 30 – 39 years age group. The majority of the patients were males (88.5%); 27.3% of them were married. The majority of the patients reported their literacy as secondary education and most of them were unemployed (Table 1).

Of all patients in the study, 98 (70.5%) were asymptomatic HIV-positive, 18 (12.9%) symptomatic HIV-positive, and 23 (16.6%) had AIDS. The source of HIV virus transmission in 89 (64%) subjects was injection.

Table 2 shows descriptive statistics of various domains of the quality of life measured in the patients. The mean±SD of total quality of life was 47±6.2. The mean score of all domains was low especially on psychologic domain (about one-fourth of the maximum score). Internal consistency of environmental domain (0.83) was more than the others. Relationship between various domains of the quality of life was assessed by Pearson's correlation coefficient. All scores of domains were correlated with the total measure of the quality of

life significantly ( $P<0.05$ ). The most significant positive correlation was observed for the social and environmental domains (0.85 and 0.87, respectively).

Table 3 shows that gender, marital status, level of education, and occupation had significant association with the quality of life based on domains. The mean of total score of women, separated or widowed, those with low education (primary) and unemployed were significantly less than the scores of other groups ( $P<0.005$ ). Patients aged <35 years were significantly better than other age groups on physical domain ( $P<0.05$ ). These patients scored less than older group on psychological, social, and environmental domains ( $P<0.05$ ).

In multivariate analysis, using multiple linear regression, the results showed that gender, marriage status, CD4+ counts, and clinical stage of the disease had independent effects on the quality of life (Table 4). These variables were able to predict 78% of the variance observed in the quality of life overall score. Among these factors, clinical stage of the disease had the strongest relationship with the quality of life. Effect of age, occupation and affliction with hepatitis C virus on the quality of life was not significant (data not shown).

## Discussion

The results of the present study showed that the majority of the patients were young men who were afflicted with disease during their active life. This result is agreed with other studies.<sup>8-9</sup> The mean age of the patients in these studies ranged from 33 to 36 years and more than 70% were men.

The majority of the patients in the current study were unemployed; a few of them had spouse and the rate of separation and divorce was remarkably high. Part of the reason of this difference might be due to the particular nature of the disease and its social consequences; another reason which is more important is that the majority of these people were injecting drug abusers.

As the results of our study showed, women with HIV/AIDS had worse conditions than men in most aspects of life and this issue originates from lack of positive perception of their role in the society, being passive from social and economic point of view and also the impact of factors such as sex inequality, violence against women, lack of social and family supporting, and especial cultural beliefs in addition to stigma of the disease. The results of study of Calvao et al., Murs et al., and also study

**Table 1.** Demographic characteristics of HIV/AIDS patients ( $n=139$ ).

Variable	Frequency	Percentage
Age		
20-29	26	18.7
30-39	80	57.6
≥40	33	23.7
Sex		
Male	123	88.5
Female	16	11.5
Marital Status		
Married	38	27.3
Single	72	51.7
Separated	23	16.5
Widowed	6	4.2
Literacy		
Primary	30	21.5
Secondary	63	45.3
High school	26	18.7
Academic	16	11.5
Unknown	4	2.8
Occupation		
Employed	48	34.5
Unemployed	91	65.4

**Table 2.** Mean (SD) of domains of the quality of life with scales description.

QOL- Domain	Mean (SD)	Cronbach's $\alpha$	Number of items	Score range	Correlation with the total score
General	3.5 (1.34)	0.77	2	0 – 8	0.79
Physical	13.1 (4.42)	0.82	6	0 – 24	0.67
Psychologic	9.2 (1.81)	0.70	8	0 – 32	0.83
Social	6.4 (1.6)	0.64	4	0 – 16	0.85
Environmental	12.6 (2.41)	0.83	6	0 – 24	0.87
<b>Total</b>	<b>47.0 (6.26)</b>	<b>0.93</b>	<b>26</b>	<b>0-104</b>	<b>1.00</b>

of WHO on 900 patients with HIV/AIDS also indicated the more undesirability in women quality of life in comparison to men.<sup>10-12</sup>

Other factors affecting the quality of life in our study were marital status, education, and employment of the patients in such a way that the married, educated, and employed patients, in most domains, especially mental health, social function, and environmental dimension had better conditions than other patients and this related to the positive role of these factors in promoting the quality of life.

In Eriksson et al.'s study in Sweden, a significant relationship was found between higher level of education, being employed, and better quality of life.<sup>13</sup> Therefore, providing employment, financial self-sufficiency, and financial assistance for patients, particularly for women affected by the disease, and making appropriate job safety for patients are the interventions causing promotion in quality of patients' life. The significant impact of clinical stage of disease on the quality of patients' life in our study reflects the disabling nature of the disease which affects various aspects of patients' quality of life seriously.

However, the most important problems of our

patients were related to the social function, psychologic aspects, and self-esteem. As Ichikawa and Natpartan showed in their study, having social acceptability has the most significant relationship with better quality of life and the social supporting regardless of clinical stage of the disease, had desired impact on psychosocial aspects of patients' life.<sup>14</sup>

Also in other studies, the relation between HIV/AIDS patients' quality of life and their socioeconomic status had linear relationship.<sup>15-16</sup>

Therefore, it seemed that establishment of appropriate social support and also education of coping methods and compatibility with the disease by concentrating on problem solving and also psychosocial interventions such as psychiatric consultations for patients and their family and also training life skills, are the appropriate approaches for promoting the quality of patients' life.

In interpreting our results, some important limitations of the study must be taken into account. The number of women in the study was very few relative to men. It should be considered that women attend these centers less than men, because of less knowledge about the consulting centers and also due to stigma. The other limitation was that

**Table 3.** Comparison of the mean $\pm$ SD of HIV/AIDS domains of the quality of life based on demographic variables.

Variable	WHO-QOL-Brief Domain					
	General	Physical	Psychologic	Social	Environmental	Total
Age						
<35	3.62 $\pm$ 1.35	14.97 $\pm$ 4.64*	8.42 $\pm$ 1.33*	5.67 $\pm$ 0.93*	12.98 $\pm$ 2.21*	47.12 $\pm$ 7.40
>35	3.37 $\pm$ 1.52	11.95 $\pm$ 3.84	10.26 $\pm$ 1.52	7.40 $\pm$ 1.80	14.97 $\pm$ 4.64	47.86 $\pm$ 10.1
Marital status						
Married	4.21 $\pm$ 0.96**	13.61 $\pm$ 2.99**	11.03 $\pm$ 1.36**	8.32 $\pm$ 1.27**	14.39 $\pm$ 2.16**	53.63 $\pm$ 7.13**
Single	3.69 $\pm$ 1.30	15.15 $\pm$ 4.63	8.69 $\pm$ 1.53	5.92 $\pm$ 1.10	12.17 $\pm$ 1.20	47.20 $\pm$ 7.30
Widowed	3.12 $\pm$ 4.24	12.50 $\pm$ 6.36	7.50 $\pm$ 0.7	5.11 $\pm$ 1.41	11.01 $\pm$ 2.82	40.50 $\pm$ 8.82
Separated	2.69 $\pm$ 1.54	10.81 $\pm$ 4.85	8.61 $\pm$ 1.40	5.43 $\pm$ 0.94	11.39 $\pm$ 1.77	40.09 $\pm$ 7.24
Education						
Primary	2.47 $\pm$ 1.54**	12.37 $\pm$ 4.74**	8.53 $\pm$ 1.43**	5.43 $\pm$ 0.72**	11.33 $\pm$ 2.26**	40.50 $\pm$ 7.68**
Secondary	3.49 $\pm$ 1.29	13.27 $\pm$ 4.82	8.38 $\pm$ 1.28	5.43 $\pm$ 1.23	12.23 $\pm$ 1.96	45.78 $\pm$ 7.76
High school	4.15 $\pm$ 1.22	13.62 $\pm$ 3.38	10.58 $\pm$ 1.56	7.27 $\pm$ 1.28	14.12 $\pm$ 2.72	52.92 $\pm$ 8.77
Academic	4.44 $\pm$ 0.81	13.44 $\pm$ 2.30	10.81 $\pm$ 1.55	8.36 $\pm$ 1.74	13.94 $\pm$ 2.96	54.38 $\pm$ 4.53
Occupation						
Employed	4.34 $\pm$ 0.67*	12.26 $\pm$ 5.15*	10.93 $\pm$ 1.38*	8.08 $\pm$ 1.42*	14.08 $\pm$ 2.18*	53.82 $\pm$ 4.54*
Unemployed	3.05 $\pm$ 1.50	14.32 $\pm$ 2.29	8.39 $\pm$ 1.35	5.59 $\pm$ 1.34	11.82 $\pm$ 2.09	43.57 $\pm$ 8.31

\* *P* value (Student's *t*-test), \*\**P* value (ANOVA).

**Table 4.** Factors significantly associated with the quality of life of patients based on multiple linear regression.

Variable	t	P value
Female	-3.3	0.001
Widowed	-2.4	0.014
Separated	-2.9	0.004
Symptomatic HIV	-4.4	0.000
AIDS	-6.3	0.000
CD <sub>4</sub> <sup>+</sup> count	2.3	0.020

the majority of the patients were injecting drug abusers. Furthermore, our results are more representative to this group of HIV/AIDS patients. Although, more than 60% of modes of transmission of HIV in Iranian patients are injecting drug abuse.<sup>17</sup> Also, the consultation centers offer free services for injecting drug abusers and most of the patients referred to these centers are men.

By summarizing the results of the present study, it seemed that the most important factors that have association with the quality of life of the patients in this study were gender, marital status, CD4+ count, and stage of the disease. Therefore, presenting community-based services and providing various multidisciplinary care models and care at home cause promotion in HR-QOL in these patients.

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