Psychosocial Determinants of Health-Related Quality of Life of People Living with HIV/AIDS on Antiretroviral Therapy at Udupi District, Southern India

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ABSTRACT

Background: Life expectancy of people living with HIV/AIDS (PLHA) on antiretroviral therapy has appreciably increased. However, psychosocial challenges pose a great threat to their health-related quality of life (HRQOL). The aim of this study was to determine psychosocial factors influencing health-related quality of life of PLHA on antiretroviral therapy.

Methods: A cross-sectional study was conducted using convenience sampling to select 226 PLHA at District hospital. Demographic information was collected using a semistructured questionnaire. HRQOL was assessed using WHOQOL-HIV Bref. The Hospital Anxiety and Depression Scale, CAGE scale, and Multidimensional Scale of Perceived Social Support were used. One-way ANOVA was applied.

Results: There was a significant difference in mean quality of life score with respect to level of anxiety in the physical ($P < 0.001$), psychological ($P < 0.001$), level of independence ($P < 0.001$), social relationships ($P = 0.047$), environment ($P < 0.001$), and spirituality domain ($P < 0.001$). Significant difference in mean quality of life score was observed with respect to level of depression in physical ($P = 0.003$), psychological ($P = 0.036$), level of independence ($P = 0.017$), social relationships ($P = 0.019$), and spirituality ($P = 0.001$). Friend support was positively associated with HRQOL in physical ($P < 0.001$), psychological ($P < 0.001$), level of independence ($P = 0.013$), social relationships ($P < 0.001$), environment (0.001), and spirituality domain (0.026). Family support was positively associated with HRQOL in physical ($P = 0.001$), psychological ($P = 0.001$), level of independence ($P = 0.040$), social relationships ($P = 0.008$), environment (0.001), and spirituality domain (0.026). A significant difference was observed with respect to affiliation to social organization in social relationships domain ($P = 0.044$).

Conclusions: Psychosocial challenges including anxiety, depression, and social support impact upon all domains of HRQOL of PLHA.

Keywords: Antiretroviral therapy, health-related quality of life, one way ANOVA, people living with HIV/AIDS, psychosocial

Original Article

INTRODUCTION

The increasing provision of great care, support, and treatment services including management of opportunistic infections and

antiretroviral treatment (ART) to people living with HIV/AIDS (PLHA) has resulted in an appreciable increase in their life expectancy.[1,2] The longer survival time of PLHA on ART therapy has inevitably brought attention for the need to include quality of life assessments for evaluating health and treatment outcomes in addition to the traditional approach of measuring mortality and morbidity.[3] HIV infection has been viewed as a chronic disease which is manageable with lifelong highly active ART. However, the long-term toxicities of currently available antiretroviral drugs combined with HIV/AIDS' profound impact on an individual's social, psychological, physical, and economic well-being compromise health-related quality of life (HRQOL).[4,5] Lower HRQOL has been associated with poor adherence to ART and higher rates of discontinuation of treatment among PLHA.[6] These may act as significant barriers to national AIDS control program goals.

Quality of life is inherently dynamic, multi-level, and complex with neither a clear definition nor conceptual clarity.[7] Lack of consensus on the definition of quality of life has presented significant challenges in studying as well as comparing various quality of life studies. In particular, studies have been conducted without a standardization of tools for measuring quality of life. For example, in developed countries, tools used in HRQOL studies range from generic to HIV specific to health outcome measures.[8-13] Despite the differences in measures, these studies provide a foundation for developing and implementing group-specific interventions to improve HRQOL as well as treatment outcomes for PLHA. However, few such studies exist in India. Therefore, this study is designed to address two gaps: Firstly, it uses standardized tools recommended by the World Health Organization to measure HRQOL and related psychosocial factors, and secondly it is conducted in the setting of a district in southern India.

METHODS

Design and setting

A cross-sectional study was conducted on a convenience sample of 226 PLHA. The study participants were attending the ART center of a district hospital based in Udupi District of Karnataka state in southern India. The antiretroviral center was established on 1st July 2008 and provides HIV/AIDS-related health care including counseling, medical management such as treatment and monitoring, and a wide range of other support and clinical services. Patients are advised to initiate highly active antiretroviral therapy (HAART) at CD4 counts of less than 200 cells/μL, or with CD4 counts between 200 and 350 cells/μL with AIDS-defining illness. Patients are scheduled for medical evaluation including refill of prescriptions every month or as clinically indicated. After the interval of 6 months, CD4 counts are re-estimated for those on ART. All the services, including ART medications, are provided free of cost as part of a national program funded by the Government of India and other international agencies.

Sample size

The sample size was calculated based on estimation of mean. An expected variability of 15.27,[14] 95% confidence level and a precision of 2 points were used, giving a total calculated sample size of 224 participants.

Inclusion criteria

Patients on ART treatment, continuously taking ARVs for at least 1 month, at least 18 years of age or older, and able to speak and understand English or Kannada language.

Exclusion criteria

Seriously ill or bed-ridden patients and those diagnosed with psychiatric disorders that impair their ability to understand and answer questions.

Between February and August 2011, participants meeting the inclusion criteria were recruited for the study.

Ethical consideration

The protocol was presented to ethics committee of the Department of Public Health at Manipal University and was approved. Written consent was among the fundamental requirements for recruiting participants.

Data collection and statistical analysis

Quality of life was assessed using the WHOQOL-HIV BREF.[15] It consisted of 31 questions; the response for each question was rated on a 5-point Likert scale on which 1 indicated

low negative perceptions and 5 high positive perceptions. These questions were distributed among six domains: Physical health, psychological health, level of independence, social relationships, environment, and spirituality/religion/personal beliefs. The physical health domain measures pain and discomfort, energy and fatigue, and sleep and rest. The psychological health domain measures positive feelings, thinking, learning, memory and concentration, self-esteem, bodily image and appearance, and negative feelings. The level of independence domain measures mobility, daily life activities, dependence on medications or treatments, and work capacity. The social relationships domain includes personal relationships, social support, social inclusion and sexual activity. The environment domain measures physical safety and security, home environment, financial resources, accessibility and quality of health and social care, opportunities for acquiring new information and skills, participation in and opportunities for recreation and leisure activities, and physical environment (pollution, noise, traffic, climate, and transport). Domain scores were scaled in a positive direction (higher scores denoting a higher QOL). To make the QOL score comparable to WHOQOL-100 score, the mean score of each domain was multiplied by 4, so that scores ranged from 4 (minimum) to 20 (maximum), with higher scores indicating a better quality of life.

Social support was assessed using the Multidimensional Scale of Perceived Social Support (MSPSS),[16,17] which is a 12-item scale that measures perceived support from three domains: Family, friends, and a significant other. Participants completing the MSPSS were asked to indicate their agreement with items on a 7-point Likert scale, ranging from very strongly disagree to very strongly agree. Total and subscale scores range from 1 to 7, with higher scores suggesting greater levels of perceived social support.

The Hospital Anxiety and Depression Scale (HADS) was developed as a short tool to identify patients at risk for two common psychological disorders–anxiety and depression.[18,19] The HADS has 14 items–seven related to anxiety and seven related to depression. Each item is a statement where a respondent chooses the degree to which the statement is applies on a 4-point Likert type scale with 0 representing no symptoms, and 3 representing the clear presence of symptoms related to anxiety or depression. The total scores for each condition is categorizes into three groups; 0-7 scores as normal, 8-11 scores as borderline abnormal and 12-21 scores as abnormal.[18]

The CAGE scale[20] was used to screen participants for alcohol misuse or dependence. It has four yes/no items, the total score range from 0 to 4.

All tools were translated to the local language (Kannada) and then back translated and tested on ten individuals. The final tools were adopted after all necessary corrections were made.

Statistical analysis

Statistical analysis was performed using Statistical Package for Social Science software (SPSS) version 16.0. Descriptive statistics such as mean, standard deviation and proportions were calculated. Correlations and one-way Analysis of Variance (ANOVA) were performed for determining significance differences between domain scores and psychosocial categories. Post-hoc analysis was performed using Tukey's to find out the pairs that contributed to the differences.

RESULTS

Of 226 participants included in this study, 52.7% were females. The majority, 65.9%, belonged to the over 35-year-age group. More than half, 51.8% were married. Respondents educated up to primary school were 54.4% and 41.6% were unskilled workers [Table 1].

Among the six domains of HRQOL, the mean score in the physical domain was the highest. This was followed by the level of independence domain, environmental domain, spirituality/religion/personal beliefs domain, psychological domain, and the social relationships domain, in descending order [Table 2].

The internal reliability of the instruments was assessed. WHOQOL-HIV BREF (Chronbach's α 0.907), HADS scale (Chronbach's α 0.692), and MSPSS (Chronbach's α 0.882).

A significant difference in mean quality of life score in physical domain was observed between participants with normal anxiety and those with borderline abnormal anxiety ($P = 0.002$), and between participants with normal anxiety and abnormal anxiety ($P < 0.001$). In the level of independence domain, significant differences

were found between normal anxiety and borderline abnormal ($P = 0.007$), and normal anxiety and abnormal anxiety ($P \leq 0.001$). In the environmental domain, a significant difference was observed between normal anxiety and borderline abnormal anxiety ($P = 0.005$) and normal anxiety and abnormal anxiety ($P < 0.001$). In the spirituality domain, there was a significant difference between normal anxiety and borderline abnormal anxiety ($P = 0.036$) also between normal anxiety and abnormal anxiety ($P < 0.001$). In the psychological domain, a significant difference existed between normal anxiety and borderline abnormal anxiety ($P = 0.001$), and also between normal anxiety and abnormal anxiety ($P < 0.001$).

Table 1: Characteristics of study participants (*N*=226)

Variables	Number (%)
Gender	
Male	107 (47.3)
Female	119 (52.7)
Age (years)	
≤35	77 (34.1)
>35	149 (65.9)
Marital status	
Married	117 (51.8)
Widow/widower	69 (30.5)
Divorced/separated	18 (8.0)
Never married	22 (9.7)
Education level	
Illiterate	30 (13.3)
Primary (up to 7 years of schooling)	123 (54.4)
Secondary (8-12 years of schooling)	69 (30.5)
Graduate and above	4 (1.8)
Occupation	
Skilled	82 (36.3)
Unskilled	94 (41.6)
Unemployed	50 (22.1)

A significant difference in mean quality of life score in the physical domain was observed between normal depression and those with abnormal depression ($P = 0.007$). There was a similar finding in the level of independence domain between normal depression and abnormal depression ($P = 0.016$), in the spirituality domain between normal depression and abnormal depression ($P = 0.004$) in the psychological domain between normal depression and abnormal depression ($P = 0.037$) and in the social relationships domain between normal depression and abnormal depression ($P = 0.043$). A significant difference was observed with respect to affiliation to any social organization in social relationships domain ($P = 0.044$), individuals affiliated to any social organization had higher quality of life in social relationships domain compared to those not affiliated [Table 3].

There was a significant positive correlation between social support from family and friends with respect to all six domains [Table 4].

DISCUSSION

This is the first study in India that identified the influence of psychosocial factors on HRQOL in various domains using WHOQOL-HIV BREF. In the present study, the highest mean score in HRQOL in the physical domain recorded was 14.9 (3.30). The physical domain assesses pain and discomfort, energy and fatigue, sleep and rest as well as HIV-related symptoms.

High quality of life in this domain might indicate better health care services provided to PLHA in this geographic area including intensive pre-ART counseling and follow-up activities and access to antiretroviral drugs and other medicines which lower the HIV-related morbidity. High literacy

Table 2: Mean quality of life score in domains of health-related quality of life

Dependent variables	Study participants (*N*=226)		
	Mean (SD)	Minimum	Maximum
Physical domain	14.9 (3.30)	4.0	20.0
Level of independence domain	14.8 (3.37)	7.0	20.0
Environment domain	14.5 (2.76)	6.5	20.0
Spirituality/religion/personal belief domain	14.3 (3.17)	7.0	20.0
Psychological domain	14.2 (2.51)	8.0	20.0
Social relationships domain	12.1 (3.67)	5.0	20.0

SD=Standard deviation

Table 3: Psycho-social factors and health-related quality of life in various domains

Variables	*N*	Physical domain		Psychological domain		Level of dependence	
		Mean (SD)	*P* value	Mean (SD)	*P* value	Mean (SD)	*P*-value
Anxiety							
Normal	109	16.1 (2.59)	<0.001*	15.1 (2.46)	<0.001*	16.0 (2.67)	<0.001*
Borderline	53	14.3 (3.07)		13.6 (2.31)		14.3 (3.42)	
Abnormal	64	13.4 (3.83)		13.0 (2.21)		13.3 (3.75)	
Depression							
Normal	107	15.5 (2.84)	0.003*	14.4 (2.50)	0.036*	15.3 (3.07)	0.017*
Borderline	63	14.9 (3.28)		14.4 (2.48)		15.1 (3.53)	
Abnormal	56	13.7 (3.82)		13.4 (2.47)		13.7 (3.37)	
Affiliation to social organization							
Yes	60	15.2 (3.29)	0.438	14.4 (2.46)	0.367	15.4 (3.43)	
No	166	14.8 (3.31)		14.1 (2.53)		14.6 (3.34)	0.131
Alcohol dependence							
No	4	12.5 (6.25)	0.228	13.4 (1.65)	0.411	15.3 (4.11)	
Possible	5	16.8 (1.92)		16.0 (4.45)		16.2 (4.32)	0.633
Probable	10	15.3 (3.03)		15.0 (2.16)		14.3 (3.06)	

*Statistical significant at 0.05 level. SD=Standard deviation

Table 4: Social support and health-related quality of life in various domains

Quality of life domains	Social support	Correlation coefficients	*P*-value
Physical	Family	0.219	0.001*
	Friends	0.279	<0.001*
Level of independence	Family	0.137	0.040*
	Friends	0.165	0.013*
Environment	Family	0.200	0.002*
	Friends	0.211	0.001*
Spirituality/ religion	Family	0.128	0.055
	Friends	0.148	0.026*
Psychological	Family	0.214	0.001*
	Friends	0.292	<0.001*
Social relationships	Family	0.177	0.008*
	Friends	0.299	<0.001*

*Statistical significant at 0.05 level

rate (86.7%) among PLHA in this part of the country might also influence their health-seeking behavior and treatment adherence which in turn improves their HRQOL in physical domain.

Our findings are in congruent with previous work from different part of the world. A study in Nigeria revealed a higher mean quality of life score in physical domain 15.9 ± 3.05.[21] Another study in Nigeria reported mean quality of life score of 15.2 ± 2.5[22] in physical domain. In Nepal, a study discovered that the mean quality of life was 14.0 ± 2.12.[23] In Taiwan, 13.2 (2.10) was a mean score reported with respect to this domain.[24] Few studies conducted in India reported relatively lower mean score compared to our findings. A study in North India reported mean quality of life score of 68 participants as 11.96 ± 3.15.[25] Similar study in Puduchery, India reported 13.0 ± 4.5 mean score in physical domain.[26] The disagreements in these results with our findings might be due to differences in sample size used.

HRQOL in social relationships domain was the lowest of all the domains in the present study. A study of serodiscordant couples under ART in Henan Province, China, reported low mean quality of life scores in the social domain.[27] Similar findings were reported in other studies.[21-24]

The social relationships domain assesses an individual's perceptions on personal relationships, social support, social inclusion and sexual activity. Low quality of life in this domain may reflect stigmatization and HIV-related discrimination faced by PLHA as well as impaired sexual activity. Some individuals infected with HIV leave their jobs due to disease progression, which affects their financial resources. This in turn can prevent them from

participating in social and recreational activities and can lead to social isolation.

There was a significant difference in virtually all the domains of HRQOL between the three levels of anxiety and depression. A prospective cohort study conducted to assess the association of psychosocial factors with HRQOL among men with HIV in the USA found that depression was associated with physical and social functioning.[11] Similar findings were found in a study conducted in Taiwan where higher depression scores were associated with impaired HRQOL in physical, psychological, and social relationship domains.[24] In Malaysia, a study was conducted on 271 PLHA revealed that anxiety was significantly associated with all the domains of HRQOL.[13] Depression and anxiety in PLHA may be caused by various factors, including testing positive for HIV and later the advancement of disease.[28] The impact of the disease on social factors like unemployment reduced social support and HIV-related symptoms may also contribute to depression and anxiety. The association of poor quality of life with abnormal depression and anxiety clearly indicates the need to identify these psychiatric comorbidities early among PLHA in an effort to improve their HRQOL. Treatment for depression may improve HRQOL and medication adherence for HIV.[28]

The results of this study highlighted that, social support from family and friends were significantly positively correlated with all the domains of HRQOL. A study on 100 people living with HIV/AIDS from an urban university hospital in Spain revealed that subjects with low levels of perceived social support had lower HRQOL scores in the physical functioning domain.[8] In another cohort study, social support was associated with the social functioning domain of HRQOL of PLHA.[11] In Nepal, perceived social support was significantly correlated with HRQOL among PLHA.[23] Our findings are also congruent with those obtained in other studies in India. A cross-sectional study in Southern India revealed that PLHA with family support had higher mean quality of life scores in the environment domain as compared to those without family support ($P < 0.001$).[29] This may indicates the need to improve social support from family and friends for all patients with poor perceived social support. This is because high social support may reduce discomfort and stabilizes an individual's mood and thoughts and therefore better perceived HRQOL.

In the present study, PLHA who are affiliated with any social organization reported higher quality of life in the social relationships domain than those who were not affiliated. This may indicate the role of social organizations in providing essential social networks that act as a platform through which various form of social support can be extended to PLHA.

CONCLUSIONS

Anxiety, depression, and social support from family and friends were significantly associated with all domains of HRQOL of PLHA who are on ART in this geographic area. Individuals with abnormal anxiety or depression had poor quality of life in all the domains while social support was positively correlated with quality of life scores in all the domains studied.

Limitation of the study

This is a cross-sectional study; hence, temporal association cannot be established. The sample of participants were drawn from public health facilities, meaning that PLHA who avail services at private health facilities were not included which may limit the generalization of the study results.

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