

Research Paper

Health-related Quality of Life Characteristics in Individuals With Human Immunodeficiency Virus



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Citation Ghodrati S, Rezaee D, Vaziri N, Shokrani B, Hazarati GH. [Health-Related Quality of Life Characteristics in Individuals With Human Immunodeficiency Virus (Persian)]. Quarterly of "The Horizon of Medical Sciences". 2020; 26(2):118-127. <https://doi.org/10.32598/hms.26.2.3012.1>

<https://doi.org/10.32598/hms.26.2.3012.1>



Received: 12 Dec 2018
Accepted: 04 Jan 2020
Available Online: 01 Apr 2020

Key words:

Health-related quality of life, Daily living functioning, Prospective/Retrospective memory, T-lymphocyte, Viral load

ABSTRACT

Aims In chronic and incurable illnesses, the quality of life and its related factors are of significant importance. We aimed to investigate the predictors of Health-Related Quality of Life (HRQoL) in Human Immunodeficiency Virus (HIV)-positive individuals.

Methods & Materials Our sample included 90 HIV-infected individuals who were under Antiretroviral Therapy (ART) in Imam Khomeini Hospital of Tehran, Iran, in 2016-2017. The HRQoL questionnaire, Prospective-Retrospective Memory Questionnaire (PRMQ), Instrumental Activities of Daily Living (IADL) interview, and flowcytometry test to assess CD4 count were used for data gathering. The obtained data were analyzed using descriptive statistics, including frequency and standard deviation and inferential statistics, including correlation and stepwise regression analyses. SPSS was used for data analysis, as well.

Findings The present study data revealed that prospective/retrospective memory complaint and daily living functioning were predictors HRQoL in individuals with HIV ($P < 0.001$, $F_{2,85} = 22.70$, $R^2 \text{ adj} = 0.55$). The collected data also suggested that CD4 count, viral load, gender, age, and education did not predict HRQoL in the explored HIV-positive individuals ($P > 0.05$).

Conclusion Prospective and retrospective memory and daily living functioning were the major predictors of HRQoL among the investigated HIV-infected individuals.

Extended Abstract

1. Introduction

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uality of Life (QoL) is a term specifically used to convey a general sense of well-being [1]. Due to improvements in treating patients with Human Immunodeficiency

Virus (HIV) and increased life expectancy of this population, their QoL has become increasingly important [2].

Previous research has reported that daily life performance is associated with Health-Related QoL (HRQoL) in patients with HIV [3]. Neurological defects, especially memory impairment, is another predictor of HRQoL among the HIV-infected individuals. Previous research has reported that impairment in executive and memory functions predicts decreased QoL among young and middle-aged individuals with HIV [4, 5]. Another factor associated with HRQoL in patients with HIV is the Cluster of Differentiation 4 (CD4) counts. Moreover, several studies have reported

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that CD4 counts are associated with QoL [6-9]. However, other studies detected no link between CD4 counts and QoL [10-13]. Viral load is another variable associated with QoL [14]. In this study, we intended to examine the cognitive, biological, functional, and demographic predictors of QoL in individuals with HIV.

2. Materials and Methods

This was a cross-sectional and analytical study. The statistical population of the present study was all individuals with HIV in Tehran City, Iran, in 2016-2017. The sampling of HIV-infected individuals was performed in the infection ward of Imam Khomeini Hospital in Tehran. Ninety people with HIV volunteered to participate in the study. We implemented a random sampling method. Data collection tools included an HRQoL assessment questionnaire; a prospective-retrospective memory scale; a daily living performance

measurement interview, and a flow cytometry test to measure CD4 counts (Tables 1, 2, 3 & 4).

3. Results

The obtained results suggested that prospective/retrospective memory and daily life performance were predictors of HRQoL in patients with HIV. Furthermore, there was a relationship between educational level and HRQoL; however, the level of education was not a predictor of HRQoL. The CD4 count and the rate of viral load, age, and gender were also not predictors of HRQoL in this population.

4. Discussion

Deauville et al. [15] argued that personal reporting of prospective memory is a unique and strong predictor of HRQoL in those with HIV infection. Additionally, Tozi et al. [4] concluded that neurological deficits are associated with poor

Table 1. The demographic characteristics of the study participants

Variable		Mean±SD/No. (%)
Age, y		39.85±8.38
Characteristics of HIV infection	The duration of antiretroviral medication (month)	56.31±55.51
	The current level of T lymphocytes (cells/μL)	509.87±267.51
	Viral load (copies/mL)	2312.3±3178.48
Gender	Male	42 (46.66)
	Female	48 (53.33)
Education	Elementary school	8 (11.94)
	Middle school	21 (31.34)
	High school	31 (46.26)
	University degree	7 (10.44)

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Table 2. The correlation coefficients of research variables

Variables	1	2	3	4	5	6	7	8
Quality of life								
Prospective/Retrospective memory	-0.696*							
Daily living performance	-0.605*	0.579						
CD4 counts	0.190	-0.127	-0.099					
Viral load level	0.014	0.338	-0.014	-0.172				
Age	0.102	0.146	0.001	0.062	0.037			
Gender	0.161	0.034	0.048	-0.051	0.193	0.277		
Educational level	0.346**	-0.371*	-0.290**	0.082	0.028	-0.122	0.068	

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* Correlations are significant at 0.01 level (2 domains); ** Correlations are significant at 0.05 level (2 domains).

Table 3. Summary of the model obtained from step-by-step regression analysis results

Predictor variable	R	R-squared	Adjusted R-squared	Estimated Standard Error
Future/past memory	0.696	0.485	0.469	118.434
Daily living performance	0.741	0.550	0.520	112.499

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Table 4. Regression coefficients related to research variables

Predictor Variables	Non-standard Coefficients			t	Significance Level
	B	Standard Error	Beta		
Fixed	696.964	53.924	-0.696	12.925	0.001
Prospective/ Retrospective memory	-5.161	1.567	-0.501	-3.294	0.002
Daily living performance	-412.415	195.165	-0.321	-2.113	0.043

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QoL. The present research results are in line with these studies; a defect in the performance of prospective/retrospective memory is another strong predictor of HRQoL among the HIV-infected population.

In a cross-sectional study by Anderson et al. [3], decreased QoL was associated with more problems with daily living activities. In the present study, daily living performance was among the significant predictors of HRQoL. Previous studies [12-14, 16], consistent with the present research, have found no relationship between CD4 counts and QoL. Our research findings were inconsistent with some previous investigations [6-9]. Gamborg et al. [17] also detected no relationship between QoL and virus levels. The present study data were in line with those of Gamborg et al. [17]; however, they were inconsistent with the research of Chandra et al. [14], who found a significant relationship between viral load and QoL.

It is suggested that future research consider further longitudinal changes in these variables and their relationship to HRQoL. Future research is also recommended to use objective measurement tools for prospective/retrospective memory, as well as daily living performance. It is recommended that future research focus on other aspects of cognitive impairment in patients with HIV; although prospective/retrospective memory is among the most significant aspects of cognitive impairment in these patients, i.e. related to QoL.

5. Conclusion

A study limitation was its cross-sectional nature. Another limitation of this research was implementing self-assessment tools. Individuals with neurological impairments of prospective and retrospective memory, due to frequent forgetfulness

in various indicators of HRQoL, encounter several defects. Besides, those with difficulties in daily living performance have reported more issues in different components of QoL. Identifying the factors associated with HRQoL in patients with HIV could significantly affect the design of therapeutic interventions; i.e. due to the long course of the disease and the survival of these patients.

Ethical Considerations

Compliance with ethical guidelines

This research was approved by the Research Ethics Committee of the University of Tehran (Code: IR.TUMS.REC.1394.1349).

Funding

The study was conducted with personal funding.

Authors' contributions

Conceptualization, Methodology, writing and review, supervision: Saeed Ghodrati, Data analysis: Donya Rezaee, Review: Newsha Vaziri, Data collection: Bahareh Shokrani, Ghazaleh Hazarati, Newsha Vaziri.

Conflicts of interest

The authors declared no conflicts of interest.