

## A Study on Demographic Factors Affecting Quality of Life among HIV-Infected People Attending a Public Primary Health Clinic in South Africa

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### ABSTRACT

**Background:** HIV/AIDS has an impact on the HIV-infected patients; therefore, there is a great need to evaluate the quality of life (QoL) and its association on the demographic factors.

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**Methods:** A cross-sectional study was conducted assessing QoL among HIV-infected and its association with demographic-factors. The QoL was assessed using a WHOQOL-HIV-BREF. Demographic-information collected using a semi-structured questionnaire were analyzed using SPSS 22. Correlations and ANOVA were performed for significance differences between domain-scores and QoL-variables.

**Results:** Of 99 participants interviewed, 52% were females and 48% males. The mean-age was  $37.53 \pm 9.127$  (range 18-60 years), 35(36.1%) had secondary-level education, 38(40%) singles, 40(40.8%) permanently-employed; 40;40.8% earning >R4000 monthly and (64;65.3%) lived in rural-areas, 94(96.9%) had chronic-diseases and 45;48.9% asymptomatic. Associations were between: Physical and gender ( $p=0.008$ ); Psychological and Marital-status ( $p=0.040$ ); Psychological and Employment ( $p=0.090$ ); Social and Employment ( $p=0.008$ ); Level-of-independence and HIV-serostatus ( $p=0.028$ ); Personal beliefs and Chronic-disease ( $p=0.075$ ) and Social and Place of residence ( $p=0.030$ ).

**Conclusion:** Gender, marital and employment HIV-serostatus, chronic-diseases and place of residence significantly affect the QoL of PLWHA. Therefore, sustained effort towards improving the QoL remains the mainstay of dealing with PLWHA.

### Keywords

HIV, AIDS, QoL, WHOQOL-HIV BREF.

### Introduction

There has been a decline in AIDS-related deaths with evidence of a drop in the number of people dying from AIDS-related causes. As reported by Boonstra [1] at a meeting of Sexual and Reproductive Health Needs of PLWHA, globally in 2011 they were more than 700 000 fewer new HIV infections than in 2001. These declines in national HIV incidence indicate that different nations sustained investments and increased political leadership for AIDS response by paying dividends towards the declines in HIV incidence. According to UNAIDS 2018 data, the Global HIV and AIDS stats

for 2017 was 36.9 million (31-34) adults and children living with HIV. Then 1.8 million (1.4-2.4) adults and children were newly infected with adults and child deaths accounting for 940 000 million (670 000-1.3million) [2].

In another UNAIDS report of 2017 [3], South Africa (SA) has the largest HIV epidemic in the World, with 19% of global number of PLWHA, with 15% of new infections and 11% of AIDS-related deaths. According to Katende and Mabindla in their study [4], in 2016, they were 7 100 000 (6 400 000 – 7 800 000) PLWHA and of these 56% (50% - 61%) were accessing antiretroviral therapy (ART). In developing countries like SA, the alarming increase in HIV/AIDS pandemic coupled with the limited accessibility and

availability of highly active anti-retroviral therapy (HAART), puts the majority of HIV/AIDS patients to suffer with the disease, with a serious impact on their QoL [5].

As stated by Geurtsen, the term “Quality of life” and more specifically, “Health-related Quality of Life (HRQOL),” refers to the physical, psychological, and social domains of health. Geurtsen also stated that the mentioned domains are seen as distinct areas that are influenced by a person’s experiences, beliefs, expectations and perceptions [6]. However, the World Health Organization (WHO) defines QoL as “individuals’ perception of their position in life in the context of the culture and value system in which they live and in relation to their goals, expectations, standards and concerns” [7].

Due to great advances in therapeutics with HIV infection being manageable with HAART, AIDS has become a chronic disease with the patients having an increased life expectancy [8]. Therefore, there is a great need for assessing the QoL of the affected people. Furthermore, it is of paramount interest to understand the quality of life of these people. Herrmann et al. [9] argues that one has to consider the chronic progression of HIV infection, the possibility of treatment, longer survival, living with a stigmatizing condition, and the fact it is incurable to date, with uncountable biopsychosocial consequences that impact on QoL.

Thus, evaluating QoL and identifying factors that influence it may lead to changes in planning and improvement in care of HIV/AIDS patients. No study thus far has been done in this region on the demographic factors associated with QoL. Therefore, this study assesses demographic factors affecting QoL among HIV-Infected People attending a Primary Health Clinic in South Africa.

## Methods

### Subjects

Ethical approval for the study was obtained from WSU - Research Innovation, Higher degrees and Ethics Committees of the faculty of Health Sciences (approval # 031/2017). The sample size was calculated from the average and variance. The number in each group was calculated to be representative of the population at 95% confidence. The participants were first explained the objectives of the study and therefore the benefit of the study through patient participant form. Then they were asked to sign written informed consent forms. One hundred HIV-infected adults who were 18 years of age or older were included in the study. These patients are attending the primary health care clinic on a monthly basis either for their repeat prescriptions or medical reviews. The participants were recruited through convenience sampling, as they attended their health care centre.

### Study Design

An observational cross-sectional study was conducted during the month of July 2018. WHOQOL-HIV BREF questionnaire was used to measure QoL of the participants. WHOQOL-HIV was developed and validated by the WHO specifically for PLWHA; it evaluates QoL based on six domains (physical, psychological,

level of independence, social relationships, environment, and spiritual/religious/personal beliefs) and includes questions specific to HIV/AIDS.

WHOQOL-HIV BREF is a short version containing 31 items [10]. Each item is rated on a 5-point Likert scale with 1 indicating a negative perception and 5 indicating a positive perception. Thus, final scores are scaled in a positive direction where higher scores indicate better QoL.

To make the QoL score comparable to WHOQOL-100 score, the mean score of each domain was added to 25, so that scores ranged from 00 (minimum) to 100 (maximum) with highest scores indicating a better quality of life.

These questions were distributed among six domains as already stated. The physical health domain measures pain and discomfort, energy and fatigue, 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. Lastly the environmental domain measures physical safety and security, home environment, quality of health and social care, opportunities for acquiring new information and skills. The demographic data were gathered using a questionnaire about gender (male/female), age in years, marital status, education level, employment status, level of income, place of residence, presence or not of other chronic diseases and HIV serostatus as summarized in Table 1.

### Data Analysis

Statistical analysis of the collected data was performed using Statistical Package for Social Science software (SPSS) Version 22. The descriptive analysis was performed using mean  $\pm$  standard deviation for all continuous variables and frequency/percentage for categorical data for the population overall and by general QoL status.

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 sociodemographic categories. Bivariate analysis was performed between both domain-specific and general QoL and each of the factors of interest using two sample t-tests or Chi square tests. The level of significance for all statistical analysis was 5% ( $p \leq 0.05$ ).

## Results

### Demographic Characteristics

The study sample ( $n = 100$ ) had a higher percentage of female participants accounting for 52%. The age group 31-40 years had the highest percentage of 40.8% with the mean age of  $37.53 \pm 9.127$  (range 18-60 years). The majority of patients (36.1%) had secondary education level. The highest number of patients

was singles (40.0%). In terms of employment type the majority (40.8%) were permanently employed with the highest number of 77.6% earning more than R 4000 per month. The highest number of patients (65.3%) lives in rural areas with the majority suffering from chronic diseases 96.9%. In terms of HIV serostatus the majority (48.9%) were asymptomatic. The detailed information about sample characteristics is presented in Table 1.

Variables	Category	Frequency (N=100) %	
		(n)	(%)
Age in Years	Mean (± SD)	37.53	(± 9.127)
Gender	Female	51	(52.0)
	Male	48	(48.0)
Age (years)	18-30	28	(28.6)
	31-40	40	(40.8)
	41-50	23	(23.5)
	>50	7	(7.1)
Educational level	Illiterate	16	(16.5)
	Primary	25	(25.8)
	Secondary	35	(36.1)
	Tertiary	19	(19.6)
Marital Status	Single	38	(40.0)
	Married	32	(33.7)
	Co-habiting	11	(11.6)
	Separated	5	(5.30)
	Divorced	5	(5.30)
	Widowed	4	(4.20)
Employment type	Permanent	40	(40.80)
	Contract	33	(33.70)
	None	25	(25.50)
Income status (Rands)	<2000	1	(1.50)
	2000-4000	14	(20.90)
	>4000	52	(77.60)
Place of Residence	Urban	34	(34.70)
	Rural	64	(65.30)
Chronic Disease	Yes	94	(96.90)
	No	3	(3.10)
HIV Serostatus	Asymptomatic	45	(48.90)
	Symptomatic	33	(33.70)
	AIDS converted	14	(15.20)

**Table 1:** Socio-demographics of study participants (N = 100). Sample characteristics by general QoL.

### Evaluation of Health-Related Quality of Life (HRQOL)

Among the six domains of HRQOL, the mean score for Physical health domain was the highest (Mean = 68.9, ± 17.0). This was followed by the Environmental domain (Mean 58.1, ± 13.2), Level of independence domain (Mean 54.0, ± 20.9), Psychological health domain (Mean 41.7, ± 11.9), Social relationships domain (Mean 39.7, ± 26.6) and the Spirituality/Religion/Personal beliefs domain (Mean 29.5, ± 28.7) in descending order as presented in Table 2. Mean Quality of life in 6 domains of health-related QoL

(Mean ± SD) are presented in Table 2.

Dependent Variables	Study participants (N = 100)		
	Mean scores (± SD) (Transformed 0-100)	Minimum	Maximum
Physical health	68.9 (± 17.0)	18.75	100
Environmental	58.1 (± 13.2)	25.0	100
Level of Independence	54.0 (± 20.9)	0	100
Psychological health	41.7 (± 11.9)	16.67	66.67
Social relationships	39.7 (± 26.6)	0	100
Spirituality/Religion/Personal beliefs	29.5 (± 28.7)	0	87.8

**Table 2:** Mean quality of life scores of healthy-related qualities of life.

As observed in Table 3, there was no significant difference (p>0.05) in the QoL of respondents in the various domains when compared based on gender.

Domain	Male	Female	p-value
	Mean (± SD)	Mean (± SD)	
Physical health	64.13 (± 25.08)	76.47 (± 22.59)	0.132
Level of Independence	56.12 (± 20.83)	54.90 (± 21.66)	0.706
Environment	52.93 (± 18.09)	56.86 (± 17.91)	0.576
Psychological health	49.20 (± 14.60)	49.21 (± 18.14)	0.195
Social relationships	43.88 (± 29.92)	36.75 (± 28.51)	0.371
Spiritual/Religious/Personal beliefs	31.92 (± 27.76)	26.96 (± 29.93)	0.263

**Table 3:** Gender and QoL scores.

When analyzing the different domains with respect to age of patients, the only domain of QoL that showed significant difference was Physical health (p = 0.023) as shown in table 4.

When respondents' QoL was assessed with respect to the influence of income level of respondents, there was no statistical difference (p>0.05) in all domains. However, when the marital status was compared with the different domains only the respondents showed statistical significance in environment domain with p=0.068. When the QoL HIV serostatus were compared, the results showed that there was no statistical difference in all domains (p>0.05).

Domain	18-30yr Mean (± SD)	31-40yr Mean (± SD)	41-50yr Mean (± SD)	>50yrs Mean (± SD)	P-Value
Physical health	80.55 (± 16.01)	68.75 (± 28.72)	59.78 (± 24.70)	75.00 (0.00)	0.023
Level of Independence	50.44 (± 23.93)	60.31 (± 18.75)	53.80 (± 22.74)	50.00 (± 17.67)	0.812
Environment	50.89 (± 15.56)	59.06 (± 17.90)	53.26 (± 20.71)	53.57 (± 17.5)	0.293
Psychological health	47.32 (± 10.41)	50.19 (± 19.34)	49.02 (± 18.05)	48.69 (± 16.42)	0.418
Social relationships	35.71 (± 27.78)	41.66 (± 28.92)	44.56 (± 27.39)	42.85 (± 17.46)	0.692

Spiritual/ Religious/ Personal beliefs	21.78 (± 27.78)	31.62 (± 29.70)	34.23 (± 27.75)	28.57 (± 29.50)	0.244
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**Table 4:** Age and QoL scores.

The results of the impact of level of education on QoL showed that there were statistical differences in four domains except and environment and spirituality/religious/personal beliefs domains as reflected in table 5.

Domain	Illiterate Mean (± SD)	Primary Mean (± SD)	Secondary Mean (± SD)	Tertiary Mean (± SD)	P- Value
Physical health	73.33 (± 17.59)	63.00 (± 26.14)	77.14 (± 16.46)	75.60 (± 22.04)	0.000
Level of Independence	44.53 (± 13.85)	61.50 (± 24.71)	48.92 (± 15.56)	61.18 (± 16.61)	0.001
Environment	52.34 (± 13.85)	55.00 (± 19.76)	51.78 (± 14.26)	60.52 (± 14.26)	0.207
Psychological health	46.06 (± 14.96)	51.50 (± 18.15)	46.64 (± 14.88)	48.02 (± 13.08)	0.029
Social relationships	33.59 (± 23.59)	38.50 (± 27.24)	41.42 (± 27.24)	47.22 (± 27.96)	0.039
Spiritual/ Religious/ Personal beliefs	30.46 (± 29.56)	30.60 (± 29.13)	31.35 (± 27.09)	26.31 (± 30.87)	0.637

**Table 5:** Educational Status and QoL scores

The impact of the employment status of respondents on QoL showed that there were significant differences  $P < 0.05$  in four domains except in the level of independence, psychological health and spirituality/religious/personal beliefs domain scores. The results of the Student's t-tests between the employment status and the domain scores are summarized in Table 6.

Domain	Permanent Mean (± SD)	Contract Mean (± SD)	None Mean (± SD)	P- Value
Physical health	71.79 (± 21.59)	59.84 (± 29.27)	81.00 (± 14.93)	0.003
Level of Independence	56.25 (± 23.68)	59.09 (± 20.07)	48.50 (± 18.15)	0.162
Environment	54.06 (± 17.98)	60.22 (± 19.12)	49.00 (± 14.39)	0.056
Psychological health	51.31 (± 18.38)	48.31 (± 17.55)	16.81 (± 11.81)	0.445
Social relationships	47.18 (± 28.79)	42.96 (± 25.97)	27.50 (± 22.53)	0.014
Spiritual/ Religious/Personal beliefs	32.50 (± 29.06)	31.81 (± 29.16)	23.50 (± 28.48)	0.433

**Table 6:** Employment Status and QoL scores.

## Discussion

The study assessed the impact of demographic factors affecting Quality of Life among HIV-Infected People attending a Primary Health Clinic in South Africa. It demonstrated the importance of sociodemographic variables to quality of life for people living with HIV/AIDS. In this study there was a predominance of females

(52%) aged between 31-40 years (40.8%) This is contrary to a study done in Brazil by Galvão et al. [11] whose results were a predominance of males (66.3%), aged 18-19 years. (62.3%). The high prevalence of female participants in this study corroborates with studies performed by Goerge et al. in an Irish cohort in 2016, Odili et al. in Nigeria in 2001 and Passos & Souza in 2015 in Southern Brazil [12-14].

In this study female patients had lower scores in social relationships and spiritual/religious/personal domains. These results correlate with those obtained by Pereira & Canavaro [15] who also used WHOQOL-HIV-Bref. Other authors in their study [16] state that in this group the lowest scores for QoL could be related to cultural, educational and socioeconomic differences between genders. They continue to argue that many women still live in a situation of economic and emotional dependence on their partners and face difficulties in the relationships, such as negotiating condom use during sexual intercourses.

Results from this study revealed that there was a statistical significance between the age of patients only in physical health domain ( $p = 0.023$ ). The highest mean domain scores were in the age range (18-30 years) than the other age groups. This shows that those aged 18 and 30 years are able to cope better with the disease than others. It could also mean that a large majority of the working population fall within this age category. This age group as stated by George S and colleagues [12] which is under 50 years and younger their chances of impairment in their physical functioning due to aging are less. Considering the fact that physical health domain measures pain and discomfort, energy and fatigue, sleep and rest.

In a study by Karkashadze et al. [17] in HIV-infected adult outpatients recruited in the National AIDS center in Tbilisi, Georgia, younger age was associated with worse general QoL, while there was no significant difference in general QoL between female and male participants. In some of the previous studies of this association performed in Croatia and Burkina Faso respectively, general QoL differed across both gender and age categories. 18,19 Authors in this study concur with Webel and colleagues who stated that generally, older people are expected to have worse QoL due to the factors related to ageing (physical conditions, fears about the future); however, according to HIV-associated stress level did not differ by age [20].

In this study there were significant differences in all domains, except environment and spiritual/religious/personal beliefs domain, between the four groups of educational levels. These results are similar to the study done in Nigeria by Odili et al. [13] who argue that the components of the spirituality/religion/personal beliefs domain are a reflection of the individual's personal opinions about the future, death and dying. It is usually not by the participant's educational level. This may be the insignificance in the domain between the various groups.

Participants with low educational levels tend to have low QoL scores in all domains with the lowest score in at the independence

level and social relationship domains. Level of independence assesses ability to work and daily activities. Results from this study also concur with Belak et al.[18] and Gasper et al. [16] results that revealed that higher education level often provides financial benefits and this is directly related to employment and monthly income. People who have higher education possibly are more integrated in society and may have a better social network of family and friends.

There were significant differences in the physical health, environment and social relationship domains between the four groups of employment status. Patients who are working and earning some money every month have better QoL in these domains. This may be to better preventive and curative health as a result of more money they earn as they work and a more conducive physical environment, physical safety and financial security. Income is a factor directly related to the conditions of health and functional capacity of the individual, and there is a relationship between low income and impaired health status [21].

### Conclusion

Although South Africa has achieved considerable success in controlling HIV/AIDS through prevention and treatment programs, social problems related to QoL, including stigma and discrimination, still remain challenges in PLWHIV. Quality of life itself is not a pre-determined characteristic – it can be modified if public health specialists target appropriate interventions at specific groups of people. Our study showed that individuals younger than 40 years of age and those with lower education level are at higher risk of having poorer QoL and health perception. These findings highlight the importance of educational interventions as well as the importance of support to HIV-infected patients. Providers of AIDS Care working in the HIV field should prioritize implementation of such interventions among HIV-infected patients. This study is the first step in researching factors influencing QoL in HIV-infected patients in this public primary healthcare setting in South Africa, and it highlights the need for future studies to further direct evidence-based action towards improving QoL in this population.

### Limitations of the Study

The study design in this research was a cross-sectional study; hence, temporal associations cannot be established. The sample of the participants was drawn from public primary health care facilities. This means that PLWHIV who access their services at private health facilities were not included so this may limit the generalization of the study results.

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