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Assessing Quality of Life in HIV-Infected Patients Attending a Public Primary Health Care Setting in South Africa

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Abstract: ***The study assessed quality of life (QoL) among HIV-infected patients. A cross-sectional study was conducted using adults patients recruited from the clinic. The QoL was assessed using a WHOQOL)-HIV-BREF. Demographic information was collected using a semistructured questionnaire. Data were analyzed using SPSS 22. Correlations and ANOVA were performed for determining significance differences between domain scores and QoL variables. Post-hoc analysis was performed using Tukey's to find contributing pairs to the differences. Of 99 participants interviewed, 52% were females and 48% males. The mean-age was 37.53±9.127 (range 18-60 years), 35(36.1%) had secondary-level of education, 38(40%) singles, 40(40.8%) permanently employed with 40; 40.8% earning more than R4000 monthly and (64; 65.3%) lived in rural areas, 94(96.9%) had chronic-diseases and 45; 48.9% were asymptomatic. The overall mean-scores for health-related QoL were 41±11.9 for psychological, 68.9±17.0 for physical, 39.7±26.6 for social, 58.1±13.2 for environmental, 29.5±28.7 for personal/spiritual/religious and 54.0±20.9 for level of independence domains. Significant difference in mean QoL scores were in level of concentration in psychological (p=0.001), physical environmental in environmental (p=0.006), fear of future/death in personal (p=0.000) and physical pain in physical domains (p=0.001). Challenges related to QoL in HIV-infected patients exist in different domains. Healthcare providers in collaboration with other stakeholders should strengthen their efforts by addressing HIV/AIDS consequences to enhance patients' QoL.***

Keywords: HIV, AIDS, QoL, WHOQOL-HIV, HAART

1. Introduction

According to UNAIDS 2018 data, the Global HIV and AIDS stats for 2017, 36.9 million (31- 43) adults and children were living with HIV, then 1.8 million (1.4 - 2.4) adults and children were newly infected and adults and child deaths accounted for 940 000 million (670 000-1.3million).[1]

South Africa has the largest HIV epidemic in the world, with 19% of the global number of people living with HIV, 15% of new infections and 11% of AIDS related deaths. South Africa has the largest treatment programme in the world, accounting for 20% of people on antiretroviral therapy globally. The country also has one of the largest domestically funded programmes, with about 80% of the AIDS response funded by the government.[2]

In 2016, South Africa had 270 000 (240 000 - 290 000) new HIV infections and 110 000 (88 000 - 140 000) AIDS-related deaths. There were 7 100 000 (6 400 000 - 7 800 000) people living with HIV in 2016, among whom 56% (50% - 61%) were accessing antiretroviral therapy (ART). Among pregnant women living with HIV, >95% (76% - >95%) were accessing treatment or prophylaxis to prevent transmission of HIV to their children. An estimated 12 000 (9600 - 22 000) children were newly infected with HIV due to mother-to-child transmission. Among people living with HIV, approximately 45% (41% - 50%) had suppressed viral loads.[2] Among the key populations most affected by HIV in SA are: Sex workers, with an HIV prevalence of 57.7%, Gay men and other men who have sex with men, with an HIV prevalence of 26.8%. Since 2010, new HIV infections have decreased by 49% and AIDS-related deaths have decreased by 29%.[2]

In developing countries, especially those with limited accessibility and availability of highly active anti-retroviral therapy (HAART), there is an alarming increase of (HIV)/AIDS pandemic, and the majority of HIV/AIDS patients continue to suffer with the disease, with a serious impact on their quality of life (QoL).[3] According to Geurtsen (2010), the term "Quality of life" (QoL) and more specifically, "Health-related Quality of Life" (HRQOL), refers to the physical, psychological, and social domains of health, seen as distinct areas that are influenced by a person's experiences, beliefs, expectations and perceptions.[4]

HIV/AIDS impacts heavily on the infected individual and the society at large that there is therefore urgency in evaluating the quality of life of HIV-infected individuals. A study performed by Dos Sanctos et al. on the quality of life of people living with HIV/AIDS in São Paulo, Brazil reported that despite differences in sex, skin color, income, and mental and immunological status, people living with HIV/AIDS have better (physical and psychological) quality of life than other patients but lower quality in social relationships domain.[5]A similar study in South India as demonstrated by Nirmal et al. also showed that patients had the worst QoL in the social domain, indicating that the patients' social contacts and sexual activity were affected markedly to a great extent.[6]

A study done in Kogi state Nigeria by Fatigun et al. suggested that stigma and discrimination, as well as poor living conditions, in the People Living with HIV/AIDS

(PLWHA) physical environment was the cause of lower QoL in the environment and social relationships domain.[7] Several authors have investigated the determinants of quality of life of PLWHA. Nojomi et al identified important factors associated with the QoL of patients to be gender, mental status, CD4 cell count and stage of the disease.[8] Razera et al reported in a study of the HRQOL of HIV infected Brazilians, that being unemployed was associated with worse QoL in all the domains measured except the domain of spirituality.[9] Another study concluded that education, income, occupation, family support and clinical categories were significantly linked to patients QoL.[10]

The objectives of this study were to assess the quality of life of HIV-infected patients and to investigate associations of socio-demographics and disease-related factors with general and domain-specific QoL.

2. Methods

A cross-sectional study was conducted on HIV-infected adults who were 18 years of age or older. A sample size of 100 patients was selected from 2500 patients who attended the HIV/AIDS clinic for their regular refill of their prescriptions in the pharmacy department during the month of July 2018. The participants were asked to sign written informed consent forms. Ethical approval for the study was obtained from Research Innovation and Ethics Committees of the Faculty of Health Sciences (approval # 031/2017). WHOQOL-HIV BREF questionnaire was used to measure QoL in the participants. WHOQOL-HIV was developed and validated by the World Health Organization specifically for PLWHIV; it evaluates QoL based on six domains (physical, psychological, level of independence, social relationships, environment and spiritual/beliefs) and includes questions specific to HIV/AIDS. WHOQOL-HIV BREF is a short version containing 31 items.[11]

The response for each question was rated on a 5-point Likert scale on which 1 indicated low negative perception and 5 indicating a positive perception. 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, 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 medication or treatments, and work capacity. The social relationships domain includes personal relationships, social support, social inclusion and sexual activity. The environmental domain measures physical safety and security, home environment, quality of health and social care, opportunities for acquiring new information and skills

Domain scores were scaled in a positive direction (higher score denoting a higher 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 higher scores indicating a better quality of life.

Out of 100 participates recruited 99 agreed to fill in the questionnaire. The high participation rate could have been due to degree of confidence and the simplicity of the procedure (completing a questionnaire taking about 25 minutes, while confidentiality was ensured). Data were analyzed from 99 participants. The scores for the six domains and general QoL were calculated according to the Manual for Scoring and Coding WHOQOL-HIV BREF.[12] The following data were obtained using a semi structured questionnaire: gender (male/female), age in years, highest educational received, marital status, employment type, income level, place of residence, chronic disease and HIV serostatus. The descriptive analysis was performed using mean±standard deviation for all continuous variables and frequency/percentage for categorical data for the population overall and by general QoL status.

Correlations and One Way Analysis of Variance (ANOVA) were performed for determining significance differences between domain scores and variables of QoL. Post-hoc analysis was performed using Tukey's to find the contributing pairs to the differences. The variables which were associated with QoL at a significance level of 0.05 were included in the multivariate analysis

3. Results

Sample characteristics

The study sample (n = 100) had a higher percentage of male participants accounting for 52%. The age group 31-40 years had the highest percentage of 40.8% with the mean age of 37.53±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%. The detailed information about sample characteristics is presented in Table 1.

Among the six domains of HRQOL, the mean score for physical domain was the highest. This was followed by the Environmental domain, level of independence domain, psychological domain, Social relationship domain and the personal/spiritual/religious beliefs domain, 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.

They were significant differences in mean quality of life scores observed between different domains and sociodemograhics of the HIV-Infected as follows: physical domain and gender (p = 0.008), marital status and environmental domain (p = -0.0767). A strong negative correlation between employment and psychological (r = -0.72) and a strong positive correlation with environment (r = 0.719) domains. An association between age group and Social (p = 0.088), HIV Serostatus with Psychological, Physical and Level of independence domains (p = 0.086,

0.013, 0.028) respectively. Chronic disease with spiritual relations (p = 0.075) and Place of residence with social domains (p = 0.03). All represented in Table 3.

They was a significant difference in mean quality of life scores with respect to level of concentration in the psychological domain (p = 0.053), physical environment (p = 0.006), satisfaction with health services (p = 0.01), satisfaction with transport (p = 0.001) enough money to meet daily needs all in environmental domain. They was a significant difference in mean quality of life scores with respect to fear of the future and death and bothered with being HIV positive (p = 0.000) in personal belief domain. Extent to which physical pain prevent one from doing their work in physical domain. The bivariate analysis is presented in Table 4.

4. Discussion

The purpose of this study was to assess the QoL of HIV-Infected patients attending a public primary health care setting in South Africa. The study also assesses associations of demographics and the different domains of QoL. Results from this showed how important socoidemographic variables towards QoL for HIV-infected patients. The results from the study showed a prevalence of HIV infection among all age groups but with the highest in the age range 31 to 40 years followed by those in 18 to 30 years as shown in Table 1. The same results were demonstrated in the study by Bankole et al[13] and Khan et al,[14] who reported that people within the age bracket of 15 to 24 years were vulnerable to HIV, while those in their 30s were most susceptible as reported by Hasanah et al [15] in Malaysia and Mini et al[16] in India. A study done in Nigeria by Shakirat an Ibrahim [17]reported in the demographic profile of the participants the predominance of female gender (70%) which is also high in this study. On the contrary studies done in USA[18] and Georgia [19] the highest percentages of gender were males accounting for 87% and 72.1% respectively.

Still on sociodemographic variables in terms of educational background, results from this study demonstrated that the majority (25.8%) of our patients had primary level of education. This would affect quality of life. As discussed by Shakirat and Bello[17] in their study, patients who are more educated can better understand the disease state and the instructions given to them of how to use their drugs which invariably enhances their QoL.

In this study, the highest mean score in HRQOL was in the physical domain (68.8±17.0). The physical domain as stated assesses pain and discomfort, energy and fatigue, sleep and rest. Therefore high quality of life in this domain might indicate better care services provided to people living with HIV/AIDS in the geographic area including intensive pre-ART counseling and follow-up activities and access to ARV drugs and other medicines which lower the HIV-related morbidity.

Results from this study are consistent with other studies done in different parts of the world that revealed a higher mean quality of life score in physical domain (68.9±17.0). A study done by Odili et al [20] in Nigeria revealed a higher mean quality of life score in physical domain (15.9±3.05). In Nepal,[21] a case study investigated on it was discovered that a mean quality of life was 14.0±2.12, in Taiwan,[22] 13.2±(2.10) while in a cross sectional study done North India recorded the mean quality of life score as 11.96±3.15.[10]

The lowest mean score in HRQOL was in personal/ spiritual/religious domain (29.5±28.7). The spirituality/ religiousness/ personal beliefs domain assesses spirituality/religion/personal beliefs, forgiveness and guilt, worries about the future, death and dying. Results in this study are contrary to the study by Odili et al[20] who recorded the highest mean QoL score (16.88±2.83) for the spirituality/religion/personal beliefs domain, indicating a better QoL in this domain than the other domains. This is in agreement with a similar study which assessed the quality of life of people living with HIV/AIDS in Kogi State in Nigeria.[7] This could be attributed to the fact that people generally, tend to be more spiritual and religious when confronted with issues that are beyond them. Studies have shown that greater levels of spirituality in people with HIV/AIDS were associated with health outcomes such as fewer mental health problems, fewer reported HIV-related symptoms, and better overall HRQOL in 14-17 people with HIV/AIDS.

In a study by Shakirat and colleague in Nigeria,[17] the environmental domain had the lowest mean score which is contrary to this study. The social domain was affected by societal discrimination and stigmatization as well as HIV/AIDS' influences on patients sexual desire, personal relationships, and family life.

The bivariate analysis done between demographics and domains of QoL, of HIV-infected patients that took part in this study revealed associations that were statistically significant. There was an association of statistical signifance between gender and physical domain *(p = 0.008).* In this study the demographic profile of participants showed the predominance of female gender, consistent with other studies. As already stated physical domain measures pain and discomfort, energy and fatigue, sleep and rest. As expressed by Gasper et al. many women still live in a situation of economic and emotional dependence on their partner and face difficulties in the relationship, such as negotiating condom use during sexual intercourse.[23]

There was a significant association between marital status and environmental domain with p = 0.067. The level of independence domain evaluates issues related to mobility, activities of daily living, dependence on medication or treatments and ability to work. Results from this study showed that the majority of the patients were singles with 40% followed by married ones accounting for 33.7%. According to Belak et al,[24] long-term partnership provides better social support, and, in addition, the need to disclose HIV status to a single person, the partner, reduces one of the biggest anxieties of seropositive individuals.

The environment plays a major role in determining health states. This can be observed from the significant effect of family support on the environmental domain. The family is usually the most important component of the immediate

environment of the patient. The family of the patient can be a major support, in terms of finances, moral support, safety and security, all which are components of the environment domain. This is in agreement with a cross-sectional study done by Wig et al [10] that a good and supportive home environment can help the patient feel better.

Results from this study showed a higher percentage (40.8%) of participants being permanently employed and the majority (77.6%) earning more than R4000. A study performed by Gaspar et al in São Paulo revealed that higher educational level often provides financial benefits and is directly related to employment and monthly income.[23] This is also in agreement with the analysis in this study that revealed an association of statistical signifance between employment and social domain with p = 0.088. Gasper and other authors [23] continued to argue that being employed is a source of social structure, bringing positive feelings of usefulness for the individual. The results are also supported by Pereira & Canavaroo who suggest that being employed can mean more than just financial benefits for these people.[25] This may also be due to better preventive and curative health as a result of more money and a more conducive physical environment, physical safety and financial security. This suggests that those aged between 30 and 39 years are able to cope better with the disease than the others. It could be because a large majority of the working population falls within that age group.

There was an association of statistical significance between HIV serostatus and level of independence domain with a p = 0.028, Psychological domain with p = 0.086 and Physical domain with a p of 0.13. In this study the majority (48.9%) of HIV serostatus were asymptomatic. Level of independence domain measures mobility, daily life activities, dependence on medications and treatments, and work capacity. The poor physical and psychological health of the symptomatic patients could result in decreased mobility, reduced activity and work capacity, and/or increased dependence on medications or treatments. This may account for the lower QoL scores of these patients compared with those for asymptomatic patients.

The majority of the HIV-infected patients (96.9%) were suffering from other chronic diseases. There was an association of statistical significance between presence of chronic disease and personal relationship domain. Presence of other symptoms and the use of a larger number of medications, with greater potential for side effects, may contribute to low QoL.

Lastly there was an association of statistical significance between place of residence and social domain with a p = 0.03. In one study performed by Belak et al. [24] participants were asked to express their perceptions of social support in relation to their HIV condition. The authors reported a significant association between not feeling supported socially and having lower QoL scores in five out of six domains. People living with HIV/AIDS often suffer from social isolation, discrimination and marginalization, suggesting a strong impact from HIV on social aspects of quality of life.

5. Conclusions

Since the roll-out of antiretroviral drugs in HIV-Infected patients in South Africa, there has been a considerable success in the control of HIV/AIDS through treatment. Despite these successes, there are still social challenges of stigma and discrimination and these challenges affect the QoL in people living with HIV/AIDS. Quality of life challenges can be modified if public healthcare providers target together appropriate interventions at specific groups of people. Results from this study showed that physical domain had the highest mean scores of quality of life followed by environmental domain. Therefore there is need for priotizing strategies towards improving quality of life on the HIV-infected patients. Since this is the first study of this kind in the clinic, further studies should be done that will further concentrate on evidence-based action in improving QoL in this population.

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7. Declaration of conflicting interests

The author declares no potential conflict of interest with respect to the research, authorship, and/or publication of this article

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References

[1] UNAIDS Regional HIV and AIDS stats 2017. Available at www.unaids.org/sites/defualt/files/media-assest/unaids-data-2018-en.pdf. Cited 11/14/2018.
[2] UNAIDS South Africa HIV and AIDS stat for 2017. Available at http://www.unaids.org/en/regionscountries/countries/southafrica. Cited 11/14/18.
[3] UNAIDS. AIDS Epidemic UNAIDS. AIDS Epidemic update. World Health Organisation, Geneva. *UNAIDS*/08.25E/JC1510E 2008.
[4] Geurtsen B. Quality of life and living with HIV/AIDS in Cambodia. *J of Trans Cultural nursing* 2010; 21(4).
[5] Dos Sanctos ECM, Ivan FJ, Fernanda L. Quality of life of people living with AIDS in São Paulo, Brazil. *Rev Saúde Pública* 2007; 41(Supl.2).
[6] Nirmal B, Divya KR, Dorairaj VS, Venkateswaren K. Qualithy of life in HIV/AIDS patients. A cross sectional study in India. *Indian J Sex Transm Dis* 2008; 29: 15-17.
[7] Fatiregun A. A, Mofolorunsho K.C, Osagbemi K.G. Quality of life of people living with HIV/AIDS in Kogi state, Nigeria. *Benin journal of postgraduate medicine* 2009; 11(1): 21-27.

[8] Nojomi M, Anbary K, Ranjbar M. Health-Related Quality of Life in Patients with HIV/AIDS. *Arch Iranian Med 2008*; 11(6): 608 612.
[9] Razera F, Ferreira J, Bonamigo RR. Factors associated with health-related quality-of-life in HIV-infected Brazilians. *Int J STD AIDS* 2008; 19: 519-523.
[10] Wig N, Lekshmi R, Pal H, Ahuja V, Mittal CM, Agarwal SK. The impact of HIV/AIDS on the quality of life: A cross sectional study in North India. *Indian J Med Sci* 2006; 60: 3-12.
[11] WHOQOL HIV group. WHOQOL-HIV for quality of life assessment among people living with HIV and AIDS results from the field test. *AIDS Care* 2004; 16: 882.
[12] World Health Organisation. *User's manual for scoring and coding WHOQOL – HIV instruments.* Department of Mental Health and Substance Dependence: Geneva, Switzerland, 2002.
[13] Bankole A, Singh S, Woog V, et al. Risk and Protection Youth and HIV/AIDS in Sub-Saharan Africa. *New York: Alan Guttmacher Institute, 2004.*
[14] Khan S, Mishra V. Youth Reproductive and Sexual Health: DHS Comparative. *Calveton, MD: Macro International, 2008.*
[15] Hasanah CL, Zaliha AR, Mahiran M. Factors influencing the quality of life in patients with HIV in Malaysia. *Qual Life Res* 2011; 20(1): 91-100.
[16] Mini KV, Ramesh A, Partasarathi G, et al. Impact of pharmacist provided education on medication adherence behavior in HIV/AIDS patients treated at a non-government secondary care hospital in India. *J AIDS/HIV Res* 2012; 4(4): 94-99.
[17] Shakirat IB, Ibrahim KB. Quality of life in HIV/AIDS Patients in a Secondary Health Care Facility, Ilorin, Nigeria. *Proc (Bayl Univ Med Cent)* 2013; 26(2): 116-119.
[18] Tsevat J, Leonard AC, Szaflarski M, et al. Change in quality of life after being diagnosed with HIV: a multicenter longitudinal study. *AIDS Patient Care STDS* 2009; 23 (11): 931-937.
[19] Karkashadze E, Gates MA, Chkhartishvili N, et al. Assessment of quality of life in people living with HIV in Georgia. *Inter J STD & AIDS* 2017; 28(7): 672-678.
[20] Odili VU, Ikhurionan IB, Usifoh SF, Oparah AC. Determinants of quality of life in HIV/AIDS patients. *West Afr J Pharm* 2011; 22: 42-8.
[21] Yada . Percieved social support, hope, and quality of life of people living with HIV/AIDS: a case study from Nepal. *Qual Life Res* 2010; 19: 157-66.
[22] Yen CF, Tsai JJ, Lu Pl, et al. Quality of life and its correlates in HIV/AIDS male outpatients receiving highly active antiretroviral therapy in Taiwan. *Psychiatry Clin Neurosci* 2004; 58: 501-6.
[23] Gasper J, Reis RK, Pereira FMV, et al. Quality of life in women with HIV/AIDS in a municipality in the state of São Paulo. *Rev Esc Enferm USP* 2011; 45: 230-6.
[24] Belak K, Varusic T, Duvancie K, Macek M. Quality of life of HIV-Infected persons in Croatia. Coll Antrop 2006; 30: 79-84.
[25] Pereira M, Canavarro MC. Gender and age differences in quality of life and impact of psycho-pathological symptoms among HIV-infected patients. *AIDS Behav* 2011; 15: 1857-69.
[26] UNAIDS Regional HIV and AIDS stats 2017. Available at www.unaids.org/sites/defualt/files/media-assest/unaids-data-2018-en.pdf. Cited 11/14/2018.
[27] UNAIDS South Africa HIV and AIDS stat for 2017. Available at http://www.unaids.org/en/regionscountries/countries/southafrica. Cited 11/14/18.
[28] UNAIDS. AIDS Epidemic UNAIDS. AIDS Epidemic update. World Health Organisation, Geneva. *UNAIDS*/08.25E/JC1510E 2008.
[29] Geurtsen B. Quality of life and living with HIV/AIDS in Cambodia. *J of Trans Cultural nursing* 2010; 21(4).
[30] Dos Sanctos ECM, Ivan FJ, Fernanda L. Quality of life of people living with AIDS in São Paulo, Brazil. *Rev Saúde Pública* 2007; 41(Supl.2).
[31] Nirmal B, Divya KR, Dorairaj VS, Venkateswaren K. Qualithy of life in HIV/AIDS patients. A cross sectional study in India. *Indian J Sex Transm Dis* 2008; 29: 15-17.
[32] Fatiregun A. A, Mofolorunsho K.C, Osagbemi K.G. Quality of life of people living with HIV/AIDS in Kogi state, Nigeria. *Benin journal of postgraduate medicine* 2009; 11(1): 21-27.
[33] Nojomi M, Anbary K, Ranjbar M. Health-Related Quality of Life in Patients with HIV/AIDS. *Arch Iranian Med 2008*; 11(6): 608 612.
[34] Razera F, Ferreira J, Bonamigo RR. Factors associated with health-related quality-of-life in HIV-infected Brazilians. *Int J STD AIDS* 2008; 19: 519-523.
[35] Wig N, Lekshmi R, Pal H, Ahuja V, Mittal CM, Agarwal SK. The impact of HIV/AIDS on the quality of life: A cross sectional study in North India. *Indian J Med Sci* 2006; 60: 3-12.
[36] WHOQOL HIV group. WHOQOL-HIV for quality of life assessment among people living with HIV and AIDS results from the field test. *AIDS Care* 2004; 16: 882.
[37] World Health Organisation. *User's manual for scoring and coding WHOQOL – HIV instruments.* Department of Mental Health and Substance Dependence: Geneva, Switzerland, 2002.
[38] Bankole A, Singh S, Woog V, et al. Risk and Protection Youth and HIV/AIDS in Sub-Saharan Africa. *New York: Alan Guttmacher Institute, 2004.*
[39] Khan S, Mishra V. Youth Reproductive and Sexual Health: DHS Comparative. *Calveton, MD: Macro International, 2008.*
[40] Hasanah CL, Zaliha AR, Mahiran M. Factors influencing the quality of life in patients with HIV in Malaysia. *Qual Life Res* 2011; 20(1): 91-100.
[41] Mini KV, Ramesh A, Partasarathi G, et al. Impact of pharmacist provided education on medication adherence behavior in HIV/AIDS patients treated at a non-government secondary care hospital in India. *J AIDS/HIV Res* 2012; 4(4): 94-99.
[42] Shakirat IB, Ibrahim KB. Quality of life in HIV/AIDS Patients in a Secondary Health Care Facility, Ilorin, Nigeria. *Proc (Bayl Univ Med Cent)* 2013; 26(2): 116-119.
[43] Tsevat J, Leonard AC, Szaflarski M, et al. Change in quality of life after being diagnosed with HIV: a multicenter longitudinal study. *AIDS Patient Care STDS* 2009;23 (11): 931-937.

[44] Karkashadze E, Gates MA, Chkhartishvili N, et al. Assessment of quality of life in people living with HIV in Georgia. *Inter J STD & AIDS* 2017; 28(7): 672-678.
[45] Odili VU, Ikhurionan IB, Usifoh SF, Oparah AC. Determinants of quality of life in HIV/AIDS patients. *West Afr J Pharm* 2011; 22: 42-8.
[46] Yada . Percieved social support, hope, and quality of life of people living with HIV/AIDS: a case study from Nepal. *Qual Life Res* 2010; 19: 157-66.
[47] Yen CF, Tsai JJ, Lu Pl, et al. Quality of life and its correlates in HIV/AIDS male outpatients receiving highly active antiretroviral therapy in Taiwan. *Psychiatry Clin Neurosci* 2004; 58: 501-6.
[48] Gasper J, Reis RK, Pereira FMV, et al. Quality of life in women with HIV/AIDS in a municipality in the state of São Paulo. *Rev Esc Enferm USP* 2011; 45: 230-6.
[49] Belak K, Varusic T, Duvancie K, Macek M. Quality of life of HIV-Infected persons in Croatia. Coll Antrop 2006; 30: 79-84.
[50] Pereira M, Canavarro MC. Gender and age differences in quality of life and impact of psycho-pathological symptoms among HIV-infected patients. *AIDS Behav* 2011; 15: 1857-69.

Table 1: Socio-demographics of study participants (N =100)

Variables		**Number**	(%)
Age in years			
Mean (±SD)		37.53±9.127	
Gender	Female	51	(52)
	Male	48	(48)
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)
	Married	32	(33.7)
	Co-habiting	11	(11.6)
	Separated	5	(5.3)
	Divorced	5	(5.3)
	Widowed	4	(4.2)
Employment type	Permanent	40	(40.8)
	Contract	33	(33.7)
	None	25	(25.5)
Income level (Rands)	< 2000	1	(1.5)
	2000-4000	14	(20.9)
	> 4000	52	(77.6)
Place of Residence	Urban	34	(34.7)
	Rural	64	(65.3)
Chronic disease	Yes	94	(96.9)
	No	3	(3.1)
HIV Serostatus	Asymptomatic	45	(48.9)
	Symptomatic	33	(33.7)
	AIDS converted	14	(15.2)

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

Dependant variables	Study participants (N = 100)		
Mean Scores (SD)	Mean Scores (SD) (Transformed 0-100)	Minimum	Maximum
(Transformed 0 -100)			
Physical domain	68.9 (17.0)	18.75	100
Psychological domain	41.7 (11.9)	16.67	66.67
Social domain	39.7 (26.6)	0	100
Environment domain	58.1 (13.2)	25	100
Personal/spiritual/religious domain	29.5 (28.7)	87.5	
Level of independence	54.0 (20.9)	0	100

Table 3: Mean differences among Quality of life domains and demographics within HIV-Infected

Demographic	Mean (SD)	Psychological		Physical		Level of independence		Social		Environment		Personal	
		r	*p*	*r*	*p*	r	*p*	r	*p*	r	*p*	r	*p*
Gender	1.5±0.5;	-0.025	0.867	-.268	**0.008**	0.021	0.839	0.119	0.246;	0.090	-0.172;	0.088	0.387
Marital Status	2.2±1.4;	0.971	**0.040**	-0.028	0.786	-0.009	0.930	0.003	0.979	-0.031	**-0.067**	-0.143	-0.168
Education Level	2.65±1.04;	0.029	0.779	0.047	0.651	0.162	0.112	0.063	0.540	0.108	-0.293	-0.095	-0.355
Employ. Type	1.85±0.08	-0.72	**0.090**	0.078	-0.447	0.122	0.229	-0.267**	**0.008**	0.037	0.719	0.119	0.243
Age Group	2.09±0.09	-0.083	0.414	0.074	0.470	0.0014	0.894	**0.088**	0.010	0.320	0.32	0.0137	0.179
HIV Serostatus	4.21±0.69	0.180	**0.086**	0.259	**0.013**	**0.028**	0.142	0.178	0.051	0.631		0.0156	0.137
Income Level	2.76±0.46	0.019	0.881	0.064	0.607	0.019	0.879	0.082	0.510	0.041	0.745	0.073	-0.555
Chronic Disease	1.03±0.17	0.04	0.700	0.0124	0.228	0.142	0.167	-0.39	0.706	0.111	0.278	0.181	***0.075***
Place of Residence	1.65±0.48;	0.047	0.645	0.029	0.779	0.011	0.265	0.221**	**0.030**	-0.0108	0.288	0.019	0.851

r = Pearson's correlation
****Correlation is significant between -1 to 1***
P statistical significant if < 0.05
SD = Standard deviation

Table 4: Associations between the domains and health related QoL categories

Domain	Categories	P value
Psychological	How well are you able to concentrate?	*0.001*
	How satisfied are you with your health?	*0.013*
	How Satisfied are you with daily life	0.220
Environment	How healthy is your physical environment?	*0.006*
	How would you rate your quality of life?	*0.053*
	How satisfied are you with your health services?	*0.010*
	How satisfied are you with your transport?	*0.001*
	Do you have enough money to meet your needs?	*0.087*
Personal beliefs	How much do you fear the future?	0.000
	How much are you bothered with being HIV positive?	0.000
	How much do you worry about death and dying?	0.000
Physical	To what extent physical pain prevent you from doing your work?	0.001
	Do you have enough energy for your daily life?	0.000
	How satisfied are you with your sleep?	0.000

***P* = 0.000 means P < 0.0005 meaning highly significant**