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Nutritional Status and Quality of Life of Adults Living with HIV/AIDs at Muhima District Hospital, Rwanda

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Abstract

Malnutrition, especially wasting has been one of the most hallmarks in HIV disease for years and it is thought to play a synergistic role in immunosuppressant initiated by HIV, and also has been proposed to be an independent risk factor of HIV disease progression. This study aims to assess nutritional status and quality of life among PLWHA at Muhima District hospital. A cross sectional descriptive survey was conducted at Muhima District Hospital using a quantitative approach. A sample of 372 PLWHA was estimated. Respondents were selected among PLWH from all health centers of Muhima District Hospital through systematic sampling. Data was collected using structured questionnaire. Data were entered and analyzed using SPSS 21; and descriptive statistics was used to generate frequencies and percentages while logistic regression analysis was performed to examine the factorsassociated with quality of life among PLWH. Respondents signed informed prior to the participation in the study. Of 372 people living with HIV/AIDs, 200 (53.8%) were female, 112 (30.1%) were married, 197 (53%) had primary level of education. Regarding nutritional status, the findings revealed that 152 (40.9%) were overweight or obese, 37 (9.9%) were underweight, 32.5% demonstrated poor quality of live. The findings revealed that people aged less than 40 years old are more likely to have good quality of life with [AOR = 2.440; 95%CI = 1.373 - 4.334; P = 0.002] compared to people aged above 50 years old. Compare to respondents without job, the findings revealed those who had small business were more likely to have poor quality of life [AOR = 0.189; 95%CI = 0.054 - 0.669; P = 0.01]. Respondents who were overweight or obese were more likely to have poor quality of life [AOR = 0.134; 95%CI = 0.056 - 0.322; P = 0.001] compared to those with normal weight. There is a need to continue follow-up people living with HIV/AIDs and provide additional support to those with poor socio-economic conditions.

Keywords: *HIV/AIDs; Nutritional Status; People Living with HIV; Muhima Hospital*

Introduction

Malnutrition has been one of the most hallmarks in HIV disease for years and it is thought to play a synergistic role in immunosuppressant initiated by HIV, and also has been proposed to be an independent risk factor of HIV disease progression. It was reported that wasting is the one of most visible signs of malnutrition as patient's progress from HIV to AIDS and that the role of HIV on nutrition is identified early in the epidemic [1].

The report from WHO showed that HIV is found to affect nutritional status by increasing energy requirements, reducing food intake, and adversely affecting nutrients absorption and metabolism. The report indicated also that failing to meet nutritional needs may lead to decreased immunity and increased susceptibility to opportunistic infections, which can lead to further malnutrition [2].

Different studies [3,4] revealed that poor nutritional status in PLWHA reduces their quality of life through speeding the disease progression, increasing morbidity and even reducing survival time. In chronic disease like HIV/AIDS, the quality of life (QoL) form an important aspect [5]. WHO defines QoL as individuals' perception of their position in life in the context of their culture and value system in

which they live and in relation to their goals, standards, expectations and concerns. Health Related Quality of Life (HRQoL) comprises the components of QoL that are directly related to health status [6].

Good nutrition for PLWHA has been proven to increase resistance to infection, help maintenance of weight, drug compliance and drug efficacy and hence improve quality of life. Scientific evidence proven that appropriate nutrition can help improve PLWHA's quality of life [7]. In Contrast, [8] said that the relationship between nutritional status and quality of life are not yet clearly defined and other different researchers indicate that the investigation of the relationship between food security and HRQoL among PLWHA is just beginning to emerge [9,10].

This study brings together essential awareness about nutritional status, quality of life of PLWHA in Rwanda and relationship between the two, and will highlight what health policy makers and organizations should consider as part of intervention to care PLWHA. It will focus on assessing nutritional status and quality of life among PLWHA.

The Quality of Life for People Living with HIV/AIDS have been challenged by different factors but poor nutrition has been a most common hallmarks of HIV disease for years due to side effect of medication, aging, socio-economic factors etc. and wasting has been the one of most visible signs of malnutrition for PLWHA [11]. In Rwanda, even if HIV prevalence has been stable at 3% [12], findings show that the HIV prevalence is still higher in urban areas (6%) than rural areas (2%) [13]. A study conducted in Rwanda revealed that nutritional status of Adults living with HIV/AIDS in 2013 indicated that 40% of them were obese and 43% overweight [14]. However, to date, there has been no published study that has assessed nutritional status and QoL of PLWH in Rwanda. Therefore, it is important to know whether the nutritional status of PLWHA in Kigali affects their Quality of Life (QoL).

Methods

Study design

Cross-sectional study design used in this study established the associations between nutritional status and QoL of PLWHA with quantitative approach. This approach chosen because the research needed to quantity the problem by way of generating numerical data or data that can be transformed to useable statistics.

The study was conducted at Muhima hospital, located in Nyarugenge District, City of Kigali, Rwanda. Muhima district hospital has 9 health centers namely Muhima, Gitega, Kabusunzu, Cor-unum, Butamwa, Rugarama, Mwendo, Biryogo, Kanyinya. The researcher decided to work in this area because there has not been any study conducted on the relationship between nutritional status and quality of life of PLWHA before. In fact, the researcher wants to address quality of life of PLWHA as it is related to nutrition as well as to update on current documentation about nutritional status and QoL of PLWHA in Rwanda.

Study population

The study only focused on People Living With HIV/AIDS (PLWHA) following Anti-Retroviral Treatment (ART) in 9 health centers of Muhima District Hospital Catchment area and according 2021 reports from all health centers of the study area, the total number of people over 18 years old living with HIV/AIDS on ART is 5,251. Therefore, the target population for this study was 5,251 PLWHA served at Muhima District Hospital.

Sample size and sampling procedure

This study was a quantitative cross sectional study, targeting people living with HIV/AIDS that were on ART and it only included individuals living with HIV/AIDS who were 18 years old or over and who would been have a nurse appointment within 3 months of the period of the research. Yamane Taro (1967) was used to calculate a sample size of 372 study participants. Simple random sampling was used to enroll study participants in the study. The structured questionnaire was used as data collection tool and administered by the trained nurses served as research assistants.

Data management

After data collection, Data were entered using KoBo Collect Toolbox and exported to Microsoft Office Excel for data cleaning and to SPSS for analysis and retained by investigator in locked folder. The data was entered and verified twice to guarantee the reliability and data analysis was performed twice to reject any differences. The investigator also retained with all used survey forms in locked cabinet.

Data analysis and ethical consideration

Data analysis was done by Statistical Package for the Social Sciences (SPSS). Descriptive analysis was done and Nutritional status of

adults living with HIV/AIDs was determined based on the mean value of questions asked and bivariate and multivariate regression for analysis of relation between dependent and independent variables. P-Value < 0.05 was taken as significant. Factors influencing People Living With HIV/AIDS (PLWHA) following Anti-Retroviral Treatment (ART were analyzed through multivariate regression. Factors were reported using odd ratio and 95% confidence interval.

The study protocol was approved by Mount Kenya University Rwanda ethical review board. Respondents received detailed information and description of the study then they signed the consent form before their participation as it was a voluntary participation.

Results

Demographic characteristics of respondents

Socio-demographic characteristics of 372 respondents are indicated in table 1 below and all respondents reached and data collected through face to face interview by using questionnaire.

Variables	Frequency	Percentage
Place of residence		
Gasabo	106	28.5
Kicukiro	15	4.0
Nyarugenge	201	54.0
Kamonyi	23	6.2
Rulindo	27	7.3
Gender		
Male	172	46.2
Female	200	53.8
Age group (Years)		
< 40	100	26.9
40 - 50	158	42.5
> 50	114	30.6
Marital status		
Single	70	18.8
Married	112	30.1
Widow/Divorced/Separated	106	28.5
Cohabiting	84	22.6
Educational Level		
Primary	197	53.0
Secondary	143	38.4
University	5	1.3
VTC	27	7.3
Occupation		
Small business	73	19.6
Farmer	16	4.3
Students	14	3.8
None	269	72.3
Member of household		
1 - 3	164	44.1
4 - 6	178	47.8
7 and more	30	8.1
Duration on ARVs (Years)		
1 - 5	125	33.6
6 - 10	52	14.0
11 - 15	135	36.3
16 - 20	60	16.1

Table 1: *Socio-demographic characteristics of respondents.*

The table above is indicating that 201 (54%) of respondents live in Nyarugenge District and smallest percentage 23 (6.2%) live out of Kigali in Kamonyi District. Among respondents 200 (53.8%) were female, 112 (30.1%) were married which is the highest number of marital status followed by cohabitating ones with a total number of 84 (22.6%) and 197 (53%) had primary level of education. 135 (36.3%) had a range of duration on ARVs 11 - 15 (years) while 60 (16.1%) had a duration on ARVs of 16 - 20 (years) range.

	Frequency	Percentage
Number of CD4 count		
> 500 cell/mm	89	23.9
351 - 500 cell/mm	67	18.0
200 - 350 cell/mm	139	37.4
< 200 cell/mm^3	77	20.7
WHO stage of AIDS		
Stage I	135	36.3
Stage II	158	42.5
Stage III	78	21.0
Stage IV	1	0.3

Table 2: *Medical history of the respondents.*

Around 77 (20.7%) of respondents had CD4 count of < 200 cell/mm, 139 (37.4%) had a range DC4 count of 200 - 350 cell/mm and 89 (23.9%) had > 500 cell/mm of DC4 count. In four stages of AIDs, 158 (42.5%) of respondents were on stage II, 135 (36.3%) were on stage I and only one respondent was on stage VI.

Nutritional status of adults living with HIV/AIDs

Nutritional status of adults was assessed by using BMI (Body Mass Index) where weight is compared with height. A person with BMI > 30 kg/m^2 is considered as obese, overweight if BMI = 25 - 29 kg/m^2, having good nutrition if BMI of 18.5 - 25 Kg/m^2) and is having malnutrition if BMI < 18.5 Kg/m^2.

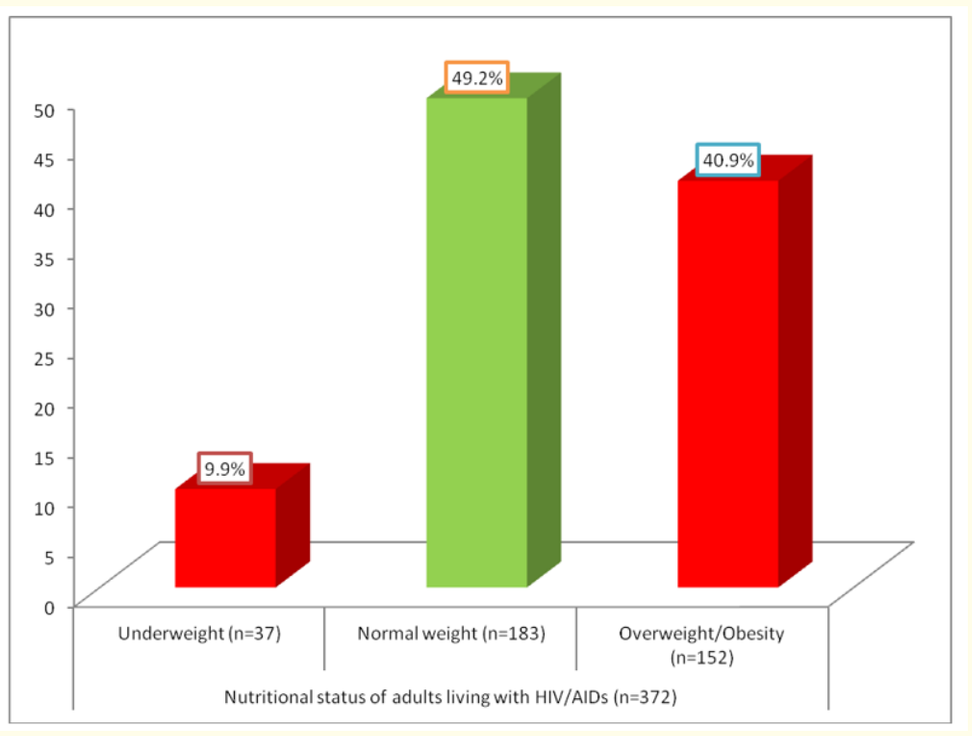

Figure 1*: Nutritional status of adults living with HIV/AIDs.*

The figure 1 above is indicating Nutritional status of adults living with HIV/AIDs where 152 (40.9%) had obesity/overweight, 183 (49.2%) had normal weight status and 37 (9.9%) were underweight.

Quality of life among adults living with HIV/AIDs in Muhima hospital

Ten statements were used to estimate the quality of life among adults living with HIV/AIDs, where all statements are positive and the total score is 10 with 3.9 mean and the results are presented in figure 2.

Variables		Frequency	Percentage
Being satisfied	Satisfied	196	52.7
	Dissatisfied	176	47.3
Feeling that physical pain prevents you from doing what you need to do.	A little	192	78.5
	Very much	80	21.5
To enjoy life	A little	319	85.8
	Very much	53	14.2
Meaningful life	A little	171	46
	Very much	201	54
Opportunity for leisure activities	A little	150	40.3
	Mostly	222	59.7
Being satisfied in sleeping	Satisfied	292	80.1
	Dissatisfied	74	19.9
Satisfied with the living place conditions	Satisfied	246	66.1
	Dissatisfied	126	33.9
Negative feelings such as blue mood, despair, anxiety, depression	Never	260	69.9
	Very often	112	30.1
To be bothered by people blaming	Mostly	48	12.9
	A little	324	87.1
To be worried about death	Never	281	75.5
	Very often	91	24.5

Table 3: *Assessment of quality of life among people living with HIV/AIDs.*

Quality of life assessment table above shows that 195 (52.7%) of respondents were satisfied with their health and 80 (21.5%) had physical pain that prevent them from doing what they need to do. 171 (46%) felt that their life is a little bit meaning full and 150 (40.3%) had less opportunity for leisure activities. 112 (31.1%) used to have negative feelings very often such as blue mood, despair, anxiety, depression, 48 (12.9%) were mostly blamed by people because they had HIV/AIDs and 91 (24.5%) were very often about death.

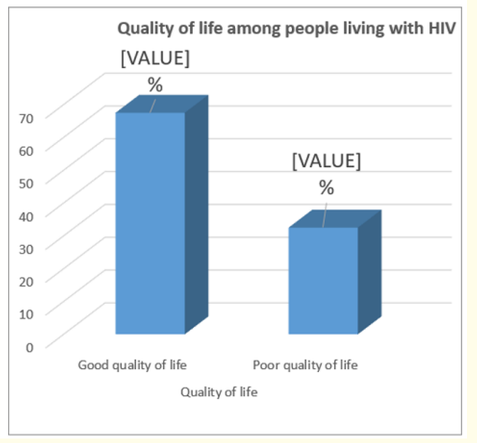

Figure 2: *Overall score of quality of live among people living with HIV/AIDs.*

The results presented in figure 2 shows that 67.5% of respondents had good quality of life while 32.5% reported to have poor quality of live.

Factors associated with quality of life among people living with HIV/AIDs

Both bivariate and multivariate analyses were performed where variables with P-value less than 0.05 in bivariate analysis were taken to multivariate analysis.

Variables	Quality of life		P-value
	Good n (%)	Poor n (%)	
Gender			0.001
Male	101 (58.7)	71 (41.3)	
Female	150 (75)	50 (25)	
Age group			< 0.001
< 40	132 (83.5)	26 (16.5)	
41 - 50	77 (67.5)	37 (32.5)	
> 50	42 (42)	58 (58)	
Marital status			
Single	51 (72.9)	19 (27.1)	
Married	81 (72.3)	31 (27.7)	< 0.001
Widow/Divorced/separated	51 (48.1)	55 (51.9)	
Cohabitating	68 (81)	16 (19)	
Occupation			
Small business	59 (80.8)	14 (19.2)	
Famer	14 (87.5)	2 (12.5)	< 0.001
Student	14 (100)	-	
None	164 (61)	105 (39)	
Household member			
1-3	106 (64.6)	58 (35.4)	
4-6	131 (73.6)	47 (26.4)	0.008
7 and more	14 (46.7)	16 (53.3)	
Duration on ARVs			
1 - 5	79 (63.2)	46 (36.8)	
6 - 10	39 (75)	13 (25)	< 0.001
11 - 15	110 (82.1)	24 (17.9)	
16 - 20	23 (38.3)	37 (61.7)	
Body Mass Index			
Underweight	21 (56.8)	16 (43.2)	
Normal weight	92 (50.3)	91 (49.7)	< 0.001
Overweight	138 (90.8)	14 (9.2)	

Table 4: *Bivariate analysis of factors associated with quality of life among adults living with HIV/AIDS in Muhima Hospital.*

The table above indicates that there was statistically significant between gender, age group, marital status, occupation, household member, duration on ARVs, body mass index and quality of life among adults living with HIV/AIDS with a p-value < 0.05. All variables with p-value were taken to multivariate analysis to understand the factors that are associated with quality of live among people living with HIV/AIDS.

Variables	AOR	95%CI		P-value
		Lower	Upper	
Gender				
Male	Ref			
Female	0.833	0.35	1.96	0.675
Age group				
< 40	2.440	1.373	4.334	0.002
41 - 50	7.011	3.932	12.502	< 0.001
> 50	Ref			
Marital status				
Single	Ref			
Married	0.579	0.108	3.087	0.522
Widower/Divorced/Separated	1.102	0.292	4.161	0.886
Cohabitating	0.402	0.062	2.617	0.34
Occupation				
Small business	0.189	0.054	0.669	0.01
Famer	0.567	0.087	3.695	0.553
None	Ref			
Household member				
1 - 3	0.266	0.052	1.351	0.11
4 - 6	0.274	0.084	0.895	0.001
7 and more	Ref			
Duration on ARVs				
1 - 5	0.504	0.105	2.412	0.391
6 - 10	0.091	0.019	0.437	0.003
11 - 15	0.055	0.013	0.229	0.001
16 - 20	Ref			
Body Mass Index				
Normal weight	Ref			
Underweight	2.017	0.451	0.451	0.359
Overweight/Obese	0.134	0.056	0.322	0.001

Table 5: *Factors associated with quality of life among adults living with HIV/AIDS in Muhima hospital.*

The findings presented in table 5 revealed that people aged less than 40 years old are more likely to have good quality of life with [AOR = 2.440; 95%CI = 1.373 - 4.334; P = 0.002] compared to people aged above 50 years old. Similarly, respondents aged 41 - 50 years old were more likely to have good quality of life [AOR = 7.011; 95%CI = 3.932 - 12.502; P = < 0.001] compared to people aged above 50 years old.

Compare to respondents without job, the findings revealed those who had small business were more likely to have poor quality of life [AOR = 0.189; 95%CI = 0.054 - 0.669; P = 0.01]. Respondents lived with a range of people between 4 - 6 person are more likely to have poor quality of life [AOR = 0.274; 95%CI = 0.084 - 0.895; P = 0.001] compared to those lived with number of people above 7.

People who were on ARVs within the duration ranging from 11 - 15 years were more likely to have poor quality of life [AOR = 0.055; 95%CI = 0.013 - 0.229; P = 0.001] compared to people who were on ARVs in a range of years of 16 - 20. Respondents who were overweight or obese with are more likely to have poor quality of life [AOR = 0.134; 95%CI = 0.056 - 0.322; P = 0.001] compared to those with normal weight.

Discussion

Assessment done on nutritional status of PLWHIV at Muhima district hospital in Nyarugenge district of Kigali city where found out that 152 (40.9%) were obese/overweight, 183 (49.2%) had normal weight status and 37 (9.9%) were underweight. These results were slightly similar as the research conducted from KwaZulu-Natal in South Africa (2011) which reported that overweight and obesity were common among PLWIHIV under nutritional care support (NCS) program [9].

The present study findings regarding quality of life assessment of adult people living with HIV/AIDs shown that 52.7% of them were satisfied with their health status and 21.5% had physical pain that prevent them from doing what they need to do.

Though, 46% of respondents felt that their life is a little bit meaning full and 40.3% had less opportunity for leisure activities while 31.1% used to have negative feelings very often such as blue mood, despair, anxiety, depression. And 12.9% were mostly blamed by people because they had HIV/AIDs and 24.5% were very often about death.

In this study we found that 32.5% of responded had poor quality of life. In contrast, a study conducted in Nigeria (2015) aimed at investigating the relationship between objective and subjective nutritional status parameters and quality of life in HIV seropositive patients reported that overall assessment of Quality of life (OQOL) was about 75%. Majority, either 53.3% had normal BMI, only 5.8% were underweight as classified by BMI, while 34.2% and 6.7% were classified overweight and obese [11].

In this study, age group has shown greater association with quality of life where people aged less than 40 years old are more likely to have good quality of life than those of 41 - 50 years old compered to people aged above 50 years old and the same applies to marital status also shown a greater association with quality of life where widow (er), divorced and separated couples are more likely to have poor quality of life than married compared to single. Also, economic status of respondents was a risk factor where the study findings shown those with high income like business men/women were subjective to the good quality of life than famers compared to jobless people. Also, BMI is statistically the risk factor of quality of life where respondents who were overweight are more likely to have good quality of life than whose BMI below the normal (Underweight).

Thus, a little similar to the study conducted from Ga-Rankuwa in South Africa shown that in general, all the HIV seropositive patients were at risk of malnutrition using the MUST, which means that BMI was a factor contributing to the quality of life among PLWHIV where majority (56.7%) of HIV seropositive persons with poor QoL using SGA tool had malnutrition. However, PLWHIV who were enrolled in NCS program had improved quality of life and less frequently being sick [9].

Conclusion

The purpose of this study was to assess the nutritional status and quality of life of adults living with HIV/AIDs at Muhima District Hospital and the study shown that 152 (40.9%) had obesity/overweight, 183 (49.2%) had normal weight status and 37 (9.9%) were underweight. Although, this study revealed that the following are factors associated to quality of life which are age group, occupation, household members, duration on ARVs and body mass index. The results from this research can't be generalized because single Hospital can't represent the whole country in consideration of the study design, sample size and the characteristics of study population.

Bibliography

1. Trujilo Elaine., *et al*. "Assessment of nutritional status, nutrient intake and nutrition support in AIDS patients". *Journal of the American Dietetic Association* 92.4 (1992): 477-478.

2. WHO. "Nutrient requirements for people living with HIV/AIDS. Report of a technical consultation". World Health Organization, Geneva (2003).

3. Testa and Lenderking. "The impact of AIDS associated wasting on quality of life: Qualitative issues of measurements and evaluation". *Journal of Nutrition* 129.1 (1999): 282-289.

4. Hsu Pencharz and Macallan Tomikins. "Micronutrients and AIDS: A review of current evidence in consultation on nutrition and HIV/AIDS in Africa: Evidence, Lessons and Recommendations for action, Durban, South Africa: WHO department of Nutrition for Health and Development" (2005).

5. Bhowmik Ananya., *et al*. "Nutritional status and quality of life of women with HIV/AIDS". *American Journal of Infectious Diseases* 8.1 (2012): 13-18.

6. WHO QOL HIV group. "WHOQOL-HIV for quality of life assessment among people living with HIV and AIDS: results from the field test". *AIDS Care* 16.7 (2004): 882-889.

7. Folasire Oluyemisi., *et al*. "Quality of life of people living with HIV and AIDS attending the antiretroviral clinic, University College Hospital, Nigeria" (2012).

8. Palermo Tia., *et al*. "Food access and diet quality are associated with Quality of Life outcomes among HIV infected individuals in Uganda" (2013).

9. Venter Evette., *et al*. "Nutritional status, quality of life and CD4 cell count of adults living with HIV/AIDS in the Ga-Rankuwa area, South Africa". *South African Journal of Clinical Nutrition* 22.3 (2009): 124-129.

10. Trujilo Elaine., *et al*. "Assessment of nutritional status nutrient intake, and nutrition support in AIDS patients" (1992).

11. Folasire Oluyemisi., *et al*. "Measures of Nutritional Status and Quality of Life in Adult People Living with HIV/AIDS at a Tertiary Hospital in Nigeria". *Food and Nutrition Sciences* 6.4 (2015): 412-420.

12. United Nations Administrative Committee on Coordination Sub-Committee on Nutrition. Fourth Report on the World Nutrition Situation: Nutrition throughout the Lifecycle (2000).

13. RPHIA, (2018-2019): The Rwanda Population-Based HIV Impact Assessment (RPHIA).

14. FrantzaJose Merle and Murenzi Augustin. "The physical activity levels among people living with HIV/AIDs receiving high active antiretroviral therapy in Rwanda" (2013).

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