

NUTRITIONAL INTAKE OF PEOPLE LIVING WITH HIV/AIDS (PLWHA) IN RURAL COMMUNITIES OF IMO STATE, NIGERIA.

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ABSTRACT

Human Immunodeficiency Virus (HIV) among rural dwellers depletes quality of agricultural labour, and reduces quality of life. Use of Antiretroviral Therapy (ART) has not significantly reduced consequences of infection, as the effort is being compromised by inadequate dietary intake. This study analysed the nutritional intake of People Living with HIV/AIDS (PLWHA) in rural communities of Imo State, Nigeria. Data were collected from 114 PLWHA randomly selected from members of two rural support groups with high prevalence of HIV in Imo State using interview schedule. The data were analysed using descriptive statistics, Pearson product moment correlation and Chi Square at 0.05 level of significance. Mean age of respondents was 41.2±11.5, 65.8% were females while majority had secondary school education (40.2%). Predominant food group consumed was cereals (78.9%) and tubers (64.9%). Iron (mean=3.01) was the nutrient most consumed while vitamin B groups (mean=1.19-1.42) were least consumed. The CD4 count had significant correlation with dietary intake ($r=-0.26$). The study concluded that diet of PLWHA in Imo State was low in micronutrients. There is need for extension workers to be more pro-active in educating people living with HIV/AIDS in rural households on the need for good nutritional intake especially fruits and vegetables.

Keywords: People Living with HIV/AIDS, Diet diversity, Dietary intake, Nutrition

INTRODUCTION

There is a national recognition that hunger, cycle of poverty and dwindling economy in Nigeria are among the most significant challenges that we face today despite the fact that agriculture is a source of livelihood for about 70% of the economically active population of Nigeria (Olomola, 2007). Raising agricultural productivity is being advocated for reducing rural poverty and enhancing food security which is essential for nutrition security. Unfortunately, low level of technological input in agriculture, poor management of natural disasters, low technical-know-how, poor agricultural policies, corruption and climate change has made it difficult to achieve food security especially in rural areas. Of recent, prevalence of HIV/AIDS in the rural areas has further exacerbated the situation because it affects mostly productive hands between the ages of 15-49 causing morbidity and death leading to loss of rural labour (Gari, 2005).

Acquired Immuno Deficiency Syndrome (AIDS) is a fatal disease which has no known cure yet. There

have been several interventions by various stakeholders such as federal government, donor agencies, Non Governmental Organizations and others to minimize the scourge of HIV/AIDS through provision of Anti-Retroviral Drugs, clinical care and support. Yet, the prevalence rate remains high and death toll from HIV/AIDS escalates at an alarming rate particularly in the rural areas. According to NACA (2015), approximately 3.5 million people are living with HIV/AIDS with an estimate of 1.4 million requiring ARV. These efforts are usually undermined by poor nutritional intake. Good nutrition even when antiretroviral treatments are not available can aid in ameliorating the effect of the virus on the body (Nanziri, 2008).

Although good nutrition cannot cure HIV infection, it is a panacea to maintaining the immune system, slowing down progression of the virus, preventing opportunistic infections, sustaining physical activity and achieving optimal quality of life (World Bank, 2007). Optimally, People Living with HIV/AIDS should consume a balanced and diverse diet, including staple foods, cooked legumes, nuts and nut butter, animal foods, milk products, fats and oils, as well as fruits and vegetables. In this way, infected people can live longer and more meaningful life despite the virus. However, Nanziri (2008) noted that the role played by good nutrition and adequate dietary intake as a major component of managing the health of PLWHA is poorly emphasised in most HIV interventions.

The understanding and practice of adequate dietary intake among PLWHA is, therefore, an important step in the direction towards reducing the mortality rate from the pandemic and the consequent effect on agriculture and national economy as a whole. It is against this background that this study seeks to provide answers for the following research questions:

1. What are the respondents' personal and health-related lifestyle characteristics?
2. What is the level of adequacy of respondents' nutritional intake?
3. What are the constraints to respondents' adequate dietary intake?

RESEARCH OBJECTIVES

The general objective of the study was to analyse the nutritional intake among People Living with HIV/AIDS Imo State.

The specific objectives of the study were to:

1. determine the personal and health related lifestyle characteristics of PLWHA in rural communities of Imo State

2. determine the respondents' level of adequacy of nutritional intake
3. identify constraints to respondents' adequate dietary intake

RESEARCH HYPOTHESIS

The following null hypothesis was tested in the study:

H₀₁ There is no significant relationship between personal and health-related lifestyle characteristics of PLWHA and the level of adequacy of their nutritional intake

METHODOLOGY

The area covered in this study was Imo State. It is one the nine State of the agricultural zone covered by South Eastern Nigeria. The State is located between longitude 6^o.36¹ and 7^o.28¹ East and latitude 5^o.57¹ and 5^o.11¹North (Federal Ministry of Lands, 2012). The state is administratively divided into three agricultural zones namely Okigwe, Orlu and Owerri and each zone has a Government owned hospital. The State has a total population of 3,927,563 (NPC, 2006). The major economic activity of the people is farming. Crop production and animal husbandry are practiced. The major crops are cassava, yam, maize, banana, plantain, pineapple, oil palm, melon and other vegetables. The major animals reared include goats, sheep, pigs, cattle and poultry.

A multi stage sampling procedure was used to selected respondents for this study. The first stage was to purposively select two Local Government Areas (Aboh Mbaise and Ahiazu Mbaise LGAs) to capture rural communities with high rural HIV prevalence. According to FMH (2010) report, the selected Local Governments were communities with the highest rural HIV prevalence in Imo State. In stage two, all support groups within the two LGAs were sampled comprising one support group each in Aboh Mbaise and Ahiazu Mbaise of Imo state. In stage three, list of all registered members of PLWHA in the support groups were obtained from the groups. Fifty percent of registered members in each group were randomly selected. A total of 129 respondents were sampled for the study. Rate of return of interview schedule forms however was 88.38%. Therefore, only 114 questionnaires were returned and were reported in this study. Interview schedule was used to collect quantitative data for the study.

Constraints to adequate dietary intake were measured by presenting to respondents, an array of possible constraints to adequate dietary intake. Respondents were asked to indicate the constraints they faced and the severity of the constraints. They were presented with a three-point scale of 'Not severe' which was scored zero, 'Severe' scored one and 'Very severe' two. The mean score was computed and ranked

according to the order of severity from the most severe to the least severe.

Nutrients intake of the respondents within twenty-four hours was determined by asking respondents to recall all food and beverages consumed and quantity taken the previous day using a food consumption questionnaire adopted from Food Consumption and Nutrition Survey Questionnaire (2001) used by International Institute for Tropical Agriculture(IITA), United States Department of Agricultural Research Service (USDARS), United States Agency for International Development (USAID) and United Nations Childrens' Emergency Fund (UNICEF). Food samples were taken and weighed. Food consumed and weight was imputed into the Total Dietary Assessment (TDA) software to determine the actual nutrient intake of each individual and the level of adequacy. The mean score was computed and ranked.

Descriptive and inferential statistics were used to analyze the data. Descriptive statistics used include; mean, frequency and percentage distribution while inferential statistics used were Pearson Product Moment Correlation and Chi-square.

RESULTS AND DISCUSSION

Age

Age distribution of respondents as presented on Table 1 shows that In Imo, 30.7% were within the age range of 31-40 years with a mean age of 41.3±11.5 years. This is in agreement with Kormawa (2005) who opined that HIV/AIDS affects the most active and productive segment of the rural society. The prevalence of HIV/AIDS within this age group is an indication that agricultural productivity and inevitably food security may be threatened, thereby putting families increasingly at risk of food unavailability and poor nutritional intake.

Sex

The distribution of respondents in Table 1 shows that majority (30.7 %) were females. This is in agreement with UNAIDS (2012) report which states that HIV/AIDS prevalence rate were generally higher among females than males and that girls and women showed higher early vulnerability and infections than boys and men. These women account for 70% of the agricultural labour force and 80% of food production (Olomola, 2007) and preparing meals consumed in homes falls disproportionately on the women. This is a dangerous trend as majority of women with HIV/AIDS implies threat to food security and poor nutritional intake by families.

Marital Status

Majority (35.1%) were single. The finding is consistent with that of Ozigbo and Odionyeme (2004), and Ofonime (2012) who found that singles were more infected than married people in their studies conducted on PLWHA. This is probably

because in the study area people marry at an age later than when they became sexually active and so they have numerous sexual partners..

Household Size

Among the respondents, majority (47.4%) had a household size of 5 to 8 persons but with mean of 6.0 ± 3.2 members. This is consistent with the findings of Adebayo (2012) that indicated average household size for most families of between 5-8 members. This household size is fairly large, which implies that the dire economic situation as experienced in the country now is likely to make it difficult to meet the nutritional needs of each individual household member. This may also result in reduced food availability, reduced food intake and poor nutritional status. Therefore the burden of HIV/AIDS may likely be more dire for families of large sizes

Educational Status

The highest educational level on Table 1 attained by most (40.4%) of the respondents was secondary school education. This shows a relatively high literacy level. This is consistent with the findings of Mofolorusho *et al.* (2013); Abu *et al.* (2010); and Duru and Mernan (2001) that majority of rural dwellers have at least a secondary school education.

Education plays a major role in information communication as it is necessary for proper processing of information as observed by Oladeji and Oyesola (2000). Therefore, knowledge on dietary intake is expected to be high, resulting in a positive attitude towards adequate dietary intake. However, with this level of educational attainment, there is low rate of employment and low income, therefore low food purchasing power. This may not ultimately translate into adequate nutritional intake.

Taking ART

Anti-Retroviral Therapy (ART) is a combination of drugs given to PLWHA to suppress and stop the

progression of the HIV virus. Majority (93.6%) of all respondents were on ART. This may not be an indication that all PLWHA have access to ART as this could have been influenced as a result of the respondents being members of support groups where they are more likely to have access. Also, free ART provision policy of 2006 by the Federal Government which has led to increased access and uptake of treatment for eligible PLWHA (NACA, 2011) may be responsible for the access. Also concerted efforts have been made by government and donor agencies to increase treatment centers over the years.

In spite of the availability of antiretroviral drugs, weight loss, wasting and malnutrition continue to be common problems among PLWHA, despite more effective antiretroviral medications. Good nutrition therefore helps the body process and utilise the many medications taken by PLWHA effectively (TAIRAD, 2003).

CD4 Count

CD4 counts are reported as the number of cells in a cubic millimetre of blood. A normal CD4 count is from 500 to 1,500 cells per cubic millimetre of blood (Ramaiah, 2011). The lower the CD4 count, the higher the chances of having opportunistic infections. Among all the respondents, however, majority (47.4%) had CD4 count above 1,000. This could be as a result of the high uptake of ART observed in the study area. Nevertheless, Forrester *et al.* (2001) noted that increased Body Mass Index (BMI) as a result of adequate dietary intake is associated with an increased CD4 count cell and lower rate of events that characterise the progression of HIV disease. Therefore, it is germane that adequate and nutritious diet be integrated into management of HIV to help the individual live an optimally healthy and satisfying life.

Table 1: Distribution of respondents' personal and health characteristics

Variable description	F	%
Age (years)		
≤20	3	2.6
21-30	21	18.4
31-40	35	30.7
41-50	29	25.4
51-60	20	17.5
61-70	6	5.4
Mean±SD	41.2±11.5	
Sex		
Male	39	34.2
Female	75	65.9
Marital Status		
Single	40	35.1
Married	29	25.4
Divorced	7	6.1
Widowed	38	33.4
Household size		
1-4	44	38.6

5-8	54	47.4
9-12	12	10.5
>12	4	3.5
Mean±SD	6.0±3.2	
Educational attainment		
Non formal education	4	3.5
No formal education	7	6.1
Primary education	30	26.3
Secondary education	46	40.4
Tertiary education	27	23.7
Taking ART		
Yes	103	93.6
No	7	6.4
CD4 count		
1-200	6	5.3
201-400	13	11.4
401-600	19	16.7
601-800	10	8.8
801-1000	9	7.9
>1000	54	47.4
No response	3	2.6
Mean±SD	549.3±288.8	

Respondents' 24 Hours Diet and Nutrient Intake

Eating a variety of food within the major food groups is often recommended as no single food group provides all essential nutrients required for healthy living. It becomes necessary, therefore, that PLWHA who already have their immune system compromised eat a wide range of food to strengthen the body's immune system, reduce side effects of drugs, delay onset of AIDS and even death as well as develop resistance to AIDS related opportunistic infections.

The distribution of respondents' 24 hours diet recall as presented on Table 2 reveals that majority (78.9%) of the respondents ate cereals, while yoghurt, milk and milk products (11.4%) and eggs (7.9%) were least consumed. This result is consistent with the report of Sanusi (2010) on food group consumption pattern in Nigeria which reveals that consumption of carbohydrates (cereals) and tubers were consumed by a high percentage of people, while the

consumption of milk and milk products and eggs were consumed by a few. The nutrient intake of the respondents as shown on Table 3 reveals that Iron (3.01) was the highest nutrient consumed. Protein (2.47) also ranked high in consumption next to Iron. The least consumed nutrient was vitamin B groups which are micronutrients. This is a result of low consumption of food which supplies the body with the much needed micronutrients for strong immune system. This is further elucidated by the findings on Table 2a which shows that eggs, milk and milk products as well as fruits were consumed by few respondents. Arimond *et al.* (2009) observed that individuals with high intake of starchy staples had diets with poorer micro-nutrient density. The general poor nutrient further validates the proposition that a low dietary diversity results in poor nutrient quality and adequacy.

Table 2: Distribution of respondents based on 24 hours diet recall dietary intake

Food group	F	%
Cereals (Millet, wheat, sorghum, maize, bread, others)	90	78.9
Tubers (Potatoes, yam, cassava, cocoyams, others)	74	64.9
Dark green leafy vegetables (Ugu, green leaf, water leaf, bitter leaf, okro, others)	63	55.3
Fruits (mangoes, oranges, paw-paw, guava, others)	17	14.9
Meat (Beef, pork, goat, grasscutters, rabbit, chicken, other birds, liver, kidney, heart, others)	56	49.1
Egg	9	7.9
Sea foods (Fresh or dried fish, cray fish, shell fish)	37	32.5
Any food made from Beans	54	47.4
Any food made from Yoghurt, milk, other milk products	13	11.4
Any food made with oil, fat or butter	5	4.4
Sugar or honey	15	13.2
Tea, coffee, cocoa, herbal drink	48	42.1

Table 3 Distribution of respondents' nutrient intake within 24 hours

Nutrients	Mean	Rank
Calories	1.87	4 th
Carbohydrates	1.71	6 th
Protein	2.31	3 rd
Dietary fiber	1.11	12 th
Vitamin C	1.31	5 th
Vitamin B1	1.42	7 th
Vitamin B2	1.29	10 th
Vitamin B3	1.32	7 th
Vitamin B6	1.19	11 th
Vitamin B12	1.33	9 th
Zinc	2.27	2 nd
Iron	3.01	1 st

Respondents' Constraint to Adequate Dietary Intake

Adequate dietary intake is as much a needed component in the management of HIV even while taking ART. It helps build up body immunity, thereby slowing down the progression of the virus. Poor income and low purchasing power in resource poor environment is a major contributory factor to poor nutritional intake as observed on Table 4 which shows that poor income (1.48) was ranked as the most severe constraint by the respondents. The findings of Banwat *et al* (2013) on nutritional knowledge practice and status of HIV/AIDS patients in Jos corroborates this result. A similar finding by Opara *et al* (2007) also reveal that about half of

PLWHA reported that they always lacked money to feed themselves to satisfaction. Lack of strength to work and tend their farms (0.50) probably as a result of poor health was ranked next to poor income. Opara *et al* (2007) further elucidates this finding. The researchers observed that well over half of PLWHA studied in Uyo were unable to continue with their pre-illness occupation.

Food taboo was ranked least as constraint towards adequate dietary intake (0.26). This is inconsistent with a study on pregnant women in Imo by Ihekereonye and Ibekano (2011) were food taboo as well as cost of food was ranked highest as a major constraint to adequate dietary intake.

Table 4: Distribution of respondents by constraints to adequate dietary intake

Factors	Mean	Rank
Poor appetite	0.47	4 th
Change in taste of food	0.38	6 th
Poor income	1.23	1 st
Inadequate support from family members in preparing a balanced diet	0.49	3 rd
Lack of strength to work and tend their farms	0.50	2 nd
Available resources are spent on medicine and health care	0.35	7 th
Inadequate farming area	0.19	10 th
I am being stigmatized	0.39	5 th
I do not belong to any social group	0.09	11 th
I have no information on good dietary intake	0.21	8 th
To eat certain foods are forbidden (food taboos)	0.26	9 th

There is no significant relationship between personal (age, sex, marital status, educational status, household size) and health-related lifestyle (taking ART and CD4 count) characteristics of PLWHA and adequacy of their nutritional intake.

There is an inverse significant correlation ($r = -0.26$, $p \leq 0.05$) between the respondents' CD4 count and their dietary intake adequacy in Imo. It can, therefore, be inferred that the higher the CD4 count which is an indication of a better health status, the lower the dietary intake adequacy. It is likely then

that it is when a noticeable drop in CD4 count has occurred that the respondents begin to make frantic efforts to build it up through consuming more nutritious diets. A study conducted by Venter *et al.* (2009) showed a strong correlation between adequate dietary intake and good CD4 count. Therefore, proper education on nutrition and uptake of Antiretroviral Therapy (ART) among PLWHA should be incorporated in the treatment plan of PLWHA in rural communities of Imo State.

Table 5: Chi Square and PPMC analysis of relationship between respondents' personal and health-related lifestyle characteristics and dietary intake adequacy

Variable	Chi Square			PPMC	
	Df	χ^2 value	p-value	r-value	p-value
Age				0.16	0.09
Household size				-0.02	0.86
CD4 Count				-0.26	0.04*
Sex	2	0.08	0.96		
Educational Status	8	11.49	0.18		
Marital Status	6	7.97	0.24		
Taking Anti Retroviral Therapy	2	1.20	0.55		

*Significant at $p \leq 0.05$

CONCLUSION

The nutritional intake of PLWHA in rural communities of Imo State accessed through 24 hours diet recall was low in micronutrients of the vitamin B groups. Provision of food rich in micronutrients is very essential in managing HIV and preventing opportunistic infections. Therefore increasing the production and consumption of food rich in micronutrients need to be encouraged. This may be achieved through agricultural programmes and policies to increase commercial production of fruits and vegetables.

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