International Journal of Medical Science and Health Research

Vol. 2, No. 03; 2018

ISSN: 2581-3366

Dietary Practices, Morbidity Status and Nutritional Status of People Living With Hiv/aids in Homabay County, Kenya

Dr. Peter M. Chege , Naom Mokono
*Department of Food, Nutrition and Dietetics - Kenyatta University, Kenya

Corresponding author
Dr. Peter M. Chege
Senior Lecturer
Department of Food, Nutrition and Dietetics - Kenyatta University, Kenya
P.O Box 43844-00100 - Nairobi, Kenya
Tel: +254 722 642 356

Abstract

Untreated infections have been observed to lead to malnutrition among People living with HIV/AIDS (PLWHAS). The purpose of this study was to explore how dietary practices affect the nutritional and morbidity status of PLWHAS. A cross-sectional study was undertaken to establish the dietary practices and sickness status of 321 randomly selected PLWHAS (aged 18-55 years) in Homa Bay town, Kenya. Findings show a mean individual dietary diversity score of 3.72±0.11. On average the study population consumed a mean of 2.89±0.03 meals a day inclusive of snacks. About 26% of the study population failed to meet their recommended daily allowance for energy. More than 20% of the respondents failed to meet their minimum daily micronutrient requirement for iron, zinc, vitamin A and vitamin C. Great disparities were noted in the consumption of energy, protein, vitamin B2, iron and zinc between males and females. Results showed that >50% of the study population consumed only three (cereals, oils & fats, sugars) out of twelve food groups more than three times in seven days. About 55% PLWHAs were sick, malaria being the most prevalent disease affecting 76.8%. About 20% of the respondents were found to be undernourished. Therefore PLWHAS in urban areas of Kenya are bound to exhibit poor nutritional status due to poor dietary practices; denoted in this study by inadequate nutrient intake and reduced number of meals. Results also confirmed inadequate dietary practices given by the low frequency of consumption of selected food groups per seven days.

Keywords: HIV/AIDS, dietary practices, morbidity, Nutritional status

1. Introduction

1.1Background information

In 2012 thirty five million people were estimated to be living with HIV/AIDS globally and an estimated 23.5 million of them reside in sub-Saharan Africa (UNAIDS, 2013; WHO, 2013). In Kenya, the HIV/AIDS prevalence is about 5.6% down from 7.2% in 2007 (3). In some parts of

Vol. 2, No. 03; 2018

ISSN: 2581-3366

Nyanza region such as Homa Bay, Siaya and Migori Counties, HIV/AIDS is the leading cause of deaths. The most affected are people aged between 15 to 64 years; these age group has over 1.4 million who are economically productive and in most cases the breadwinners affected by the HIV/AIDS scourge (KAIS, 2012; UNAIDS, 2013). Homa Bay town has the highest HIV/AIDS prevalence of about 27.1%; the prevalence is higher than the Kenya urban HIV/AIDS prevalence of 6.5% and the overall country prevalence as well (*NACC, 2013*).

1.2 Problem statement

Poor dietary practices affect the nutritional status of household members negatively (*Onyango, Walingo, Mbagaya & Kakai, 2012*). Inadequate dietary intake for instance is associated with high risk for morbidity, and poor nutrition status (*Nyansikera, 2010;* Palermo, Rawat, Weiser & Kadiyala, 2013). HIV/AIDS and related untreated opportunistic infections coupled with poor dietary practices lead to poor nutritional status among children and adults (Chege, Kuria & Kimiywe, 2010). Some opportunistic infections also independently affect nutrient intake and utilization hence leading to poor nutritional status (Weiser et al., 2011). Limited studies have been conducted to show clearly the dynamic interactions between dietary practices, morbidity and nutritional status among PLWHA. Therefore this study sought to fill this gap by assessing dietary practices, morbidity status and nutrition status among adults living with HIV/AIDS in Homa Bay County, Kenya.

2. Method

2.1 Study design

The study adopted a cross-sectional analytical design to determine the dietary practices and morbidity status as well as assess the nutritional status of adults (18-55 years old) living with HIV/AIDS. This design was useful in collecting information that would describe the population as it was at that particular time.

2.2 Study population

Data was collected in 2013 from households with PLWHA; the main respondents were adults who were HIV/AIDS infected (aged 18-55 years) who were enrolled in MOH/MSF program at Homa Bay District Hospital. The PLWHA were residents of Homa Bay town and its immediate outskirts; Homa Bay town is the headquarters of Homa Bay County, Kenya. Those receiving ART treatment with a BMI >18 were included in the study. Those with chronic health conditions e.g. diabetes and cancer or if they were bedridden were excluded from the study to avoid HIV/AIDS non-specific results. A sample of 321 PLWHAs randomly selected from five villages that make up Homa Bay municipality was used.

2.3 Data collection

Vol. 2, No. 03; 2018

ISSN: 2581-3366

Questionnaires were administered in the local language *Dholuo*. The individual dietary diversity score (IDDS) was used to collect information on dietary quality; the number of foods and/or food groups consumed in the previous 24 hours. The 24-hour recall was used to collect information on dietary intake of household members in the previous 24-hours prior to the interview day (*Geffen, 2003*). A seven day food frequency form was used to obtain information on how regular the respondents consumed various foods in a week.

Information from the respondents on the main illnesses and their major signs and symptoms was collected. Information on demographic characteristics and socio-economic characteristics was collected

This study assessed the weight and height of the respondents for use in body mass index (BMI) calculation information. The BMI calculator software was used to determine BMI which was used to determine the nutritional status of the respondents.

2.4 Ethical Clearance and Approval

The research permit was sought from the National Council for Science and Technology (Research Permit No. NACOSTI/P/13/1012/73. Ethical clearance was obtained from Ethical Review Committee of Kenyatta University (Applicant No. PKU/131/I 115 of 2013. An informed and signed consent was sought from the respondents before the study. The research purpose and protocols were explained in detail to the local administration, community leaders and the respondents.

2.5 Data analyses

Nutri-survey was used to analyze dietary intake data from the 24-hour recall. Data cleaning and analysis was done using Statistical Package for Social Sciences (SPSS) version 15.0. Data was described in terms of mean and percentages. Chi square test was used for establishment of associations between categorical variables while Pearson correlation analysis was used to establish strength of association between non-categorical variables. T-test for independent samples was used to determine if there were significant differences between the study variables for males and females. Significance levels were determined at 95% confidence interval.

Vol. 2, No. 03; 2018

ISSN: 2581-3366

3. Results

3.1 Demographic and socio-demographic characteristics of study respondents

The mean age of the study population was 35.53±0.53. There were more females (71.7%) than males (28.3%) and majority (75.9%) of the respondents were married. The largest household had 20 people and the smallest was made up of one person. The mean household size was 4.85±0.16. Majority of the respondents (60.9%) had a primary level education and only 1.9% of the respondents had no formal education. Most of the respondents (45%) were in self-employment (business, fishing and farming), 11.3% in formal employment and 23.9% were unemployed. Most of the households (40.5%) had a monthly income of Ksh. 500-3000 (≤30 USD).

3.2 Dietary diversity

The mean IDDS score was 3.72±0.11. Cereals were consumed by all individuals (100%). Vitamin A rich fruits and vegetables consumption was fairly high at 82.2%. Eggs, meat and other fruits and vegetables were the least consumed food groups at 6.5%, 13.4%, 2.2% and 3.4%, respectively. IDDS had significant relationships income (χ^2=32.012, p=0.024) and education (χ^2=21.183, p=0.003) but not with marital status (χ^2=13.857, p=0.107).

3.3 Dietary intake

On average the study population consumed a mean of 2.89±0.03 meals (main meals and snacks). Majority of the respondents (76.3%) consumed three meals a day and only 0.6% had five meals a day. Majority (>50%) of the respondents consumed the required recommended daily allowances (RDA) for energy, protein, fat, vitamins A, vitamin B, vitamin C, iron and zinc as shown in Table 1. Vitamin C and fat intake were of concern with notably low percentages for both males and females. On average 26.6% of the study population failed to meet their minimum caloric requirements. There was no significant difference (t=9.46, p=0.061) between nutrient intakes of males and females and no significant relationship between nutrient intake and socio-economic class (lower and upper) (χ^2=3.124, p=0.321).

Table 1: Nutrient intake

Nutrient	RDA (for PLWHAs)		Intake	Proportion with adequate	P-value
Energy (Kcal)	Female	2000	3049.62±86.74	80.2	<0.001
	Male	2200	2823.88±138.4	66.7	<0.001
Protein (g)	Female	46	102.02±3.62	90.8	<0.001
	Male	56	90.96±4.92	77.0	<0.001

Vol. 2, No. 03; 2018

ISSN: 2581-3366

Fat (g)	Female	67	64.10±3.92	62.1	0.006
	Male	73	56.63±3.70	58.6	<0.001
Vitamin A (RE)	Female	500	1877.39±83.47	93.4	<0.001
	Male	600	1687.35±139.8	85.1	<0.001
Vitamin B1(mg)	Female	1.1	2.53±0.09	87.7	0.079
	Male	1.2	2.28±0.13	78.2	0.09
Vitamin B2 (mg)	Female	1.1	1.63±0.05	99.1	<0.001
	Male	1.3	1.44±0.08	57.5	0.087
Vitamin B6 (mg)	Female	1.3	3.31±0.10	95.2	<0.001
	Male	1.3	2.98±0.16	82.8	<0.001
Vitamin C (mg)	Female	45.0	83.98±9.25	68.3	<0.001
	Male	45.0	75.79±6.79	59.8	<0.001
Iron (mg)	Female	18.0	15.73±0.42	91.6	<0.001
	Male	8.0	14.49±0.67	71.3	<0.001
Zinc(mg)	Female	9.8	20.25±0.66	85.0	<0.001
	Male	14.0	18.15±1.06	63.2	<0.001

3.4 Food frequency

The study found that cereals were most regularly consumed; 56% of the respondents consumed cereals up to seven days. The consumption of sugars was second and oil/fat use third with majority (>43%) of respondents consuming the foods three to five days in a week. Eggs, fruits, meats, legumes, vegetables and roots/tubers were the least consumed foods with majority of respondents (>97%) reporting a consumption of less than 3 days in a week.

3.5 Morbidity status

About 55% of the respondents were found to have opportunistic infections. Malaria was the main illness of concern affecting 76.8% of the respondents; Homa Bay is a highly endemic region and respondents cited low ownership and usage of mosquito nets by adults in the area. Pneumonia came in second at 2.5% and T.B third at 0.6%. Other illnesses such as asthma, typhoid, herpes zoster and allergies affected 4.4% of the respondents. Diarrhoea affected 3.5% of respondents who majorly reported having malaria and typhoid. Loss of appetite was reported by 1.9% respondents who had malaria and cough among 12.1% of respondents with T.B, asthma, pneumonia and allergies. About 64.2% sought treatment in health facilities while 35.8% despite being sick never sought any treatment; the main reason cited by respondents was stigmatization at local health centres forcing many to incur huge transportation costs in bid to seek medical attention far away from home.

Vol. 2, No. 03; 2018

ISSN: 2581-3366

3.6 Nutritional status

The study found out that 19.6% of the population had a BMI <18.5 hence were classified as malnourished; 5.9% males and 13.7 females (Table 2).

Table 2: Nutritional status by gender

Nutritional status	Females (%)	Males (%)
Underweight	20.4	17.6
Normal	64.8	69.2
Overweight	11.3	11.0
Obese	3.5	2.2

There was no significant relationship between gender and underweight status (χ^2=4.567, p=0.072). Majority (66%) of the respondents were found to have normal nutritional status with a BMI of between 18.5 and 24.99. About 11.2% of the respondents were overweight and only 3.1% of the respondents were obese.

The individual dietary diversity scores were found to have significant association with the nutritional status (r=0.874, p=0.003 (Table 3).

Table 3: Relationship between dietary practices, morbidity status and nutritional status

	Variables	Statistic	P value
Body mass index	IDDS	r=0.874	P=0.003
	Kilocalories intake	r=0.743	P<0.001
	Number of meals	r=0.389	P=0.038
	Sickness status	χ^2 =0.561	P=0.043
Sickness status	IDDS	χ^2 =17.254	P=0.045
	Frequency of vegetable consumption	χ^2 =25.331	P=0.032
	Frequency of fruit consumption	χ^2 =33.768	P=0.022
	Intake of Vitamin A	χ^2 =66.921	P=0.046
	Intake of Vitamin C	χ^2 =47.743	P=0.027
	Intake of Iron	χ^2 =52.846	P=0.033

Vol. 2, No. 03; 2018

ISSN: 2581-3366

Intake of Zinc	χ^2 =33.456	P=0.028

The nutritional status of the PLWHAs was also associated with the number of meals an individual had (r=0.743, p=0.038) as well as the kilocalories intake (r=0.743, p< 0.001). The sickness status also had a significant relationship with the PLWHAs BMI (χ^2=0.561, p=0.043)

Chi square test results showed that there were significant relationships between the PLWHAs sickness status and the IDDS (χ^2=17.254, p=0.045), frequency of vegetable consumption (χ^2=25.331, p=0.032) and frequency of fruit consumption (χ^2=33.768, p=0.022).The intake of selected micronutrients was also found to have significant relationship with the sickness status: vitamin A (χ^2=66.921, p=0.046), vitamin C (χ^2=47.743, p=0.027), iron (χ^2=52.846, p=0.033) and zinc χ^2=66.921, p=0.028) (Table 3).

4. Discussions

Majority of urban households with PLWHA exhibited poor dietary practices leading to failure to meet recommended daily allowances for the studied nutrients requirements as well as micronutrient requirements. The number of meals was below the recommended small but frequent meals of about six times a day (FANTA, 2001) to enable them meet their increased energy and nutrient needs. The respondents also reported having low quality diets as shown by the IDDS; low dietary quality often translates to nutrient inadequacies (Ruel, 2002).

The presence of illnesses among the respondents such as Malaria and T.B. which often manifested as diarrhoea, vomiting, fever and cough was observed to be related to inadequate intake of kilocalories and vital micro nutrients such as iron, vitamin A, vitamin C and zinc. The micronutrient inadequacies were due to infrequent consumption of fruits, vegetables and meats which the respondents reported to be either locally unavailable or too expensive. In light of WHO nutrient recommendations, PLWHA require more nutrients to lead a healthy life and they often have deficiencies of several nutrients; inadequate intake of these nutrients would have detrimental effects on the health and nutritional status of PLWHA (WHO, 200).

Conclusion

There link between dietary practices, morbidity and nutritional status is dynamic as indicated by the findings of this study. Poor dietary practices were noted to greatly influence nutrition status leading to malnutrition. The low intake of micronutrient rich foods led to occurrence of opportunistic infections which aggravated the nutritional status.

Recommendations

Vol. 2, No. 03; 2018

ISSN: 2581-3366

This study recommends initiation of programs to boost food security so as to ensure adequate meals. Nutrition education on consumption of fruits and vegetables to boost immunity to be conducted as well as prompt treatment of opportunistic infections

Acknowledgements

This work would not have been possible, without the support of Kenyatta University and MSF/MOH clinic at Homa Bay District Hospital. We express our sincere gratitude to the management and staff of these institutions.

Competing interests

The authors declare that they have no competing interests.

Author's contributions

The authors have made equal contribution to this work

References

Chege, M. P., Kuria, E., & Kimiywe, J. (2010). A comparative study on dietary practices, morbidity patterns and nutrition status of HIV/AIDS infected and non-infected pre-school children in Kibera slum, Kenya. Journal of Applied Biosciences, 32: 2008-2014. Retrieved from www.m.elewa.org/JABS/2010/32/8.pdf. pp 3 - 57

FANTA. (2001). *HIV/AIDS: A guide for nutrition, care and support*. Washington D.C., Food and Nutrition Technical Assistance. Retrieved from www.who.int/hac/techguidance/pht/8518.pdf.

Geffen, D. (2003). Dietary assessment. Retrieved September 14, 2014 from Nutrition Education Website: apps.medsch.ucla.edu/nutrition/dietassess.html

Kenya Aids Indicator Survey (KAIS). (2012). *Preliminary Report*. Republic of Kenya. Retrieved from http://nascop.or.ke/library/3d/Preliminary...202012.pdf.

NACC. (2013). Homa Bay County HIV/AIDS prevalence (as cited in J. Omoro 2013, August 20, National AIDS Control Council declares HIV/AIDS a disaster in lakeside county. The Standard digital news. Retrieved from http://www.standardmedia.co.ke/?articleID=2000091420.

Nyansikera, N. R. (2010). Nutritional status, dietary practices and clinical factors of people livinh with HIV/AIDS attending Riruta health centre, Nairobi, Kenya. Jomo Kenyatta

Vol. 2, No. 03; 2018

ISSN: 2581-3366

University of Agriculture and Technology, Nairobi. Retrieved from http://elearning.jkuat.ac.ke/journals/ojs/.../691

Onyango, C. A., Walingo, K. M., Mbagaya, G., & Kakai R. (2012). Assessing nutrient intake and nutrient status of HIV seropositive patients attending clinic at Chulaimbo sub-district hospital, Kenya. *Journal of Nutrition and Metabolism*, 1-6. Doi:10.1155/2012/306530

Palermo, T., Rawat, R., Weiser, D. S. & Kadiyala, S. (2013). Food access and diet quality are associated with quality of life outcomes among HIV-infected individuals in Uganda. *PLoS ONE, 8*(4): e62353. Doi: 10.1371/journal. Pone.0062353

Ruel, T. M. (2002). Is dietary diversity an indicator of food security or dietary quality? A review of measurement issues and research needs. *FCND discussion paper No.140,* IFPRI, Washington DC.

UNAIDS. (2013). *Global Report: UNAIDS report on the global AIDS epidemic 2013.* Geneva. Retrieved from http://www.unaids.org/...2013_en.pdf.

Weiser, D. S., Young, L.S., Cohen, R. G., Kushel, B. M., Tsai, C. A., Tien, C. P., ... Bangsberg, R. D. (2011). Conceptual framework for understanding the bidirectional links between food insecurity and HIV/AIDS. *Am J Clin Nutr., 94* (6): 1729S–1739S. Doi: 10.3945/ajcn.111.012070

WHO. (2003). Nutrient requirements for people living with HIV/AIDS. *Report of a technical consultation*. WHO, Geneva.

WHO. (2013). *HIV/AIDS data and statistics: Global summary of the HIV/AIDS epidemic, December 2011*. Retrieved Jan 3, 2014 from WHO website: http://www.who.int/hiv/data/2012_epi_core_en.png.