SCHOOL OF PUBLIC HEALTH

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ASSESSMENT OF NUTRITION SUPPORT SERVICES FOR PERSONS LIVING WITH HIV AT SELECTED ART SITES IN GHANA

BY

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DECLARATION

I Mariama Bogobire Yakubu hereby declare that except for references to other people's work which has been duly acknowledged. This work is the result of my own original research and that this dissertation has neither in whole or in part been presented elsewhere for another degree.

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DEDICATION

I dedicate this work to all Persons living with HIV. Being HIV positive does not mean your life has come to an end.

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ABSTRACT

According to the 2012 HIV sentinel Survey Report, it is estimated that 235,982 people are living with HIV in Ghana. There have been several interventions all making attempts to address challenges PLHIV face. One of such interventions is the Nutrition Assessment Counselling and Support programme (NACS) which aims at providing a comprehensive nutrition services for PLHIV.

The study hopes to bring to the fore the capacity of health workers to deliver NACS services in Ghana, the availability and use of NACS related educational materials and equipments, the adequacy of nutrition counselling as part of NACS services and also to assess the nutrition knowledge of the PLHIV's receiving NACS services at the selected ART sites.

This is a cross-sectional study. Persons Living with HIV (PLHIV) and Health workers were conveniently selected from eight (8) active ART sites implementing NACS. Participants were interviewed with the use of structured questionnaire. A standardized observation checklist was also used to collect information on the quality of nutrition counselling and the availability and use of NACS related equipment and materials. Nutrition knowledge of PLHIV was determined based on knowledge of two or more critical times to wash hands properly, three basic ways to increase energy intake, two or more advantages of eating a nutritionally adequate diet, and eating three or more times a day. Adequacy of nutrition counselling was determined using a standardised checklist from FANTA on nutrition counselling quality. Scoring 75% or more means nutrition counselling was of good quality. The capacity of the health workers delivering nutrition services to PLHIV was also assessed by way of looking at their background training as nurses/nutritionist or dietician or Counsellors and if they have ever received an MOH approved training in nutrition and HIV

The availability on use of NACS related educational material and equipment was also assessed.

Data from 261 PLHIV's 13 health workers and eight ART sites were included in the analysis. For the PLHIV, there were 197 females (75.5%) and 64 females (24.5%), Less than 30.0% have never had any form of education, 81% of them are employed. For the health personnel, four were Nurses, two Dieticians, two Models of Hope Personnel, a Statistician, two Health educators and two Psychologists. Routine individual nutrition counselling was not observed in any of the facilities except for those visibly wasted who needed to be put on therapeutic food. Seven of such sessions were observed using a nutrition quality checklist. All counselling sessions were of good quality as the average scores ranged from 75% to 90%. Almost all (89%) of PLHIV had adequate knowledge on the need to eat three or more times a day. However, less than 20% of them knew three basic ways to increase energy intake. Most health workers have the requisite training to provide NACS services to PLHIV's. Almost all ART sites are not adequately equipped to deliver NACS services to PLHIV's.

In conclusion, routine nutrition counselling for PLHIV has been found to be inadequate even though most health personnel delivering nutrition services have been trained. There is the need for regular refresher training for health workers and to replace health worker who have gone on transfer or retirement with those with the requisite skills and appropriate training to provide comprehensive nutrition services for PLHIV. Most PLHIV's were found to have quite an adequate nutrition knowledge but there the need to help improve the availability with the use of BCC/IEC materials

like posters that communicates nutrition and HIV messages in languages that are easy to comprehend.

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LIST OF ABBREVIATIONS

AIDS	**Acquired Immune Deficiency Syndrome**
ART	**Antiretroviral Therapy**
ARV	**Antiretroviral**
BCC	**Behaviour Change Communication**
BMI	**Body Mass Index**
CD4	**Colony Differentiated type 4**
FANTA	**Food and Nutrition Technical Assistance**
FBP	**Food by Prescription**
GHS	**Ghana Health Services**
GHSERC	**Ghana Health Services Ethical Review Committee**
HAART	**Highly Active Antiretroviral Therapy**
HCBC	**Home and Community- Based Care**
HIV	**Human Immunodeficiency Virus**
IEC	**information Education Communication**
MOH	**Ministry of Health**
NACS	**Nutrition Assessment Counselling and Support**
NACP	**National HIV/AIDS Control Programme**
NGO	**Non-Governmental Organisation**
ORS	**Oral Rehydration Salt**
PEPFAR	**President's Emergency Plan for AIDS Relief**
PLHIV	**People Living with HIV**
PMTCT	**Prevention of Mother-To-Child Transmission**
STI	**Sexually Transmitted Infection**
UNAIDS	**United Nations Programme on HIV/AIDS**

UNICEF	**United Nations International Children's Fund**
USA	**United States of America**
USAID	**United States Agency for International Development**
WHO	**World Health Organization**
WFP	**World Food Programme**

CHAPTER ONE

1.0 INTRODUCTION

1.1 Background

Human Immunodeficiency Virus/Acquired Immune Deficiency Syndrome (HIV/AIDS) is a global health problem with about 68% (23million) of the estimated 34 million global HIV/AIDS cases living in Sub-Saharan Africa (Loonam & Mullen, 2012; UNAIDS, 2012). In 2012, 235,982 Ghanaians were estimated to be living with HIV with new infections estimated to be about 11,655 adults within the ages of 15-49. Ghana's Median prevalence rate is at 2.1; however there is a regional variation which ranges from a prevalence rate of 0.9 in the Northern region to 3.6 in the Eastern region (NASCOP, 2013).

Several interventions have been put in place by the Government, Non-Governmental Organisation's (NGO), religious groups and civil society organisations for PLHIV. Some of these interventions includes; provision of comprehensive ART, Prevention of Mother-to-Child Transmission (PMTCT), voluntary HIV testing and counselling, community approach to counselling sero-discordant couples, provision of psychosocial support and integrating nutrition in HIV treatment and care (Ghana AIDS Commission, 2012). These are all aimed at improving the quality of life of PLHIV to allow them have normal functional life. Most of the emphasis on care and management has been on the provision and expansion of ART services

Pre-existing chronic under-nutrition in the general population of which PLHIV are part exist as a result food unavailability and or inaccessibility, and poor eating habits.

(Houtzager, 2009). This could partly be the cause of the unacceptably high morbidity and mortality rates among PLHIV.

Adequate nutrition strengthens the immune system of PLHIV and thereby protects them from opportunistic infection which they are highly susceptible to due to their infection status (Ivers et al., 2009). This also goes a long way to improve adherence to ART's and treatment outcomes thereby, improving their health status and quality of life in general. Poor nutrition and HIV are interlinked because they both damages the immune system of PLHIV's over a long time thereby, increasing disease progression and affecting quality of life and the overall survival of the PLHIV.

HIV can cause malnutrition due to increased energy requirement (10-30% higher than in healthy adults and over 50% in children), poor nutrient absorption, decreased food intake, and recurrent diarrhoea which can lead to a compromised immune system and increase in vulnerability to opportunistic infections. Under nutrition has also been found to hasten disease progression and undermine adherence and response to ARV's. (WFP, 2008). Under nutrition has also been found to be associated with decreased viral suppression, worst immunologic status, and increased incidence of serious illness and increase mortality (Castleman, 2008). A study in Kenya in 2006 which reviewed a nutrition support programme initiated in 2002 demonstrated that, where food and nutrition assistance and support was provided for PLHIV on ART and their families there was greater adherence to ART, fewer food related side effects and greater ability to be satisfied and increased appetite and most of them gained weight, recovered their physical strength and were able to resume labour activities (WFP, 2008).

Improvement in nutrition knowledge and positive practices among PLHIVs in societies with pre-existing food and nutrition insecurities and malnutrition can be transformed into good dietary practices among PLHIVs which can help improve their nutritional status and improve their quality of life even in the midst of their inadequate access to food (John, 2010). People with various socio-economic status and geographical location including PLHIV will need nutrition education to be able to improve their nutrition status (Nti, 2012). However, adequate nutrition in the case of the PLHIV begins with an assessment of the person's nutritional status; this is an important point in improving and maintaining the nutritional status of the PLHIV (Chapfunga, 2013).

In recognising the importance of food and nutrition interventions in the management of HIV/AIDS that nutrition intervention like the Nutrition Assessment, Counselling and Support (NACS) services have been integrated in HIV services in many African countries including Ghana. NACS is a nutrition intervention that is designed with recommended guidelines to address the specific nutrition issues faced by PLHIV, and to build the capacity of the facilities and personnel providing the services to enable them address the special nutrition needs of PLHIV.

In 2006 the Ministry of Health (MOH) Ghana developed national guidelines on nutrition support and care for PLHIV in response to recognising the important role nutrition and food security play in the management of HIV. This was the first step in integrating nutrition in HIV services in Ghana. These recommended guidelines sought to address dietary problems which are specific to PLHIV

1.2 Problem Statement

Integrating nutrition intervention programmes in HIV management has been recognised as important to successful treatment outcomes (Greenblott, 2012; WFP, 2008). A key nutrition intervention is the Nutrition Assessment Counselling and Support (NACS). However, since it's implementation in 2010 in 11 pilot ART sites and further scale up to 42 in 2012, little is known about its implementation, whether protocols are being observed or not, the impact on the PLHIV receiving the service and what the challenges are as to its implementation.

1.3 Justification

This study is expected to contribute to knowledge on how NACS programme is being implemented, the capacity of the health workers to provide nutrition services and the availability of job aids to help provide quality services since little evidence exist about the implementation of NACS, its challenges and some of the success stories that can be shared to help improve upon the design of future nutrition programmes for PLHIV.

The findings will reveal the nature and quality of nutrition counselling services provided for PLHIVs seeking care at these facilities, it will also reveal the capacity of the personnel delivering NACS services and the resources available at their disposal to deliver such services as this will help provide information for improvement in the design and management of nutrition intervention programmes for PLHIVs, additionally, it will provide information on levels of nutrition knowledge of PLHIVs seeking care at these facilities as this will help evaluate and measure the impact of nutrition counselling and education the facilities provide for these PLHIV seeking care there. This will help advocate for support where there are challenges and improve

upon the effective areas and approaches of the nutrition counselling and education services for PLHIVs and share best practices with other facilities.

Furthermore, the findings of this study is expected to serve as an informed base for further research into how to design effective nutrition intervention programmes for PLHIVs that will address their nutrition needs and challenges holistically.

1.4 General Objectives

To evaluate the nutrition assessment, counselling and support services for PLHIVs seeking care at some selected ART sites in Ghana

1.4.1 Specific Objectives

1. To determine the adequacy of nutrition counselling services delivered as part of the NACS programme in Ghana
2. To assess the availability and use of the NACS related educational materials and equipment in Ghana
3. To assess the capacity of health workers to provide nutrition assessment, counselling and support services in Ghana
4. To assess the nutrition knowledge and practices of PLHIVs seeking care at eight selected ART sites in Ghana

CHAPTER TWO

2.0 LITERATURE REVIEW

2.1 HIV/AIDS

Human Immunodeficiency Virus (HIV) is a Virus that infects, impairs and destroys the functions of the immune cells of an infected person gradually making the infected person immuno-deficient (Chapfunga, 2013). As the infection progress the immune system becomes weaker and the person becomes more susceptible to infections. The most advanced stage of HIV infection is AIDS and this can take between 10-15 years to develop; ART's can however slow down the process even further. (Chapfunga, 2013). HIV is usually diagnosed through a blood test detecting the presence or absence of HIV antibodies. HIV antibodies usually take 3-6weeks to develop after an exposure. An HIV infected person show varying signs and symptoms depending on the stage of the infection and this includes; weight lost diarrhoea, cough, swollen lymph nodes, and fever. However, in situations where treatment is not sought early tuberculosis, cryptococcal meningitis and cancers like lymphomas and kaposi's sarcoma (Chapfunga, 2013). People most at risk of acquiring HIV includes; Men who have sex with Men, People who sell sex and People who inject drugs. HIV infection can be acquired through having unprotected anal or vaginal sex, sharing of contaminated syringes and needles and other injecting equipment, medical procedure, blood transfusions, accidental needles, from mothers to their babies and stick injuries by health workers. HIV infections have no cure but can be managed through the effective use of ART.

Over the past three decades, HIV/AIDS has been a major public health concern which has claimed about 25 million lives globally (WHO UNAIDS UNICEF, 2011). About

35 million people are living with HIV globally as at 2011 out of which about 23 million of them live in Sub-Saharan-Africa (Chapfunga, 2013). Ghana has an HIV population of about 225487 of which 30,401 of them are children and 12,077 new infections. About 14,000 people died from HIV/AIDS related causes in Ghana in 2011 (Ghana AIDS Commission, 2012). According to 2011 HIV sentinel survey report, there is prevalence variations with respect to geographical area, gender, age and residence. The regional prevalence ranged from 0.3% in the northern region to 4.7 in the central region, out of the about 225478 PLHIV in Ghana, about 100336 are males and about 125141 of them being females. The prevalence variation for the various age categories was reported to be; 2.9% for the 30-34 years age group, 15-24 years age group, 1.7% and 1.9% for the 19-15 year's age group (Mahesh Devnania, 2012).

The HIV epidemic has not only negatively impacted on the health, but also, nutrition, food security, and economic development of people in areas where the disease is endemic (Suneeta, 2007). Women are biologically, socially and economically vulnerable to HIV than men because they usually have inadequate access to resources like land, food and income for that matter are more likely to get involved in high risk behaviour that put them at risk of HIV infection (WFP, 2008). Because women are usually saddled with the responsibility of care of children and other members of the household, food production, purchase and preparation are usually their responsibility so when a woman is HIV positive, household food security, care giving responsibility become negatively affected. Responsibilities may shift to younger inexperienced women in the household, whose responsibilities will be giving care to the sick HIV infected person, food production, purchasing and giving care to younger members of

the family. About 90% of HIV infected children contracted the HIV virus from their mothers through pregnancy, delivery and breastfeeding (Suneeta, 2007; WFP, 2008).

2.2 Interventions to Address HIV

According to Loenzien (2009), PLHIV need a whole range of care which has to be a set of consistent and well-coordinated interventions ranging from prevention to palliative care. The results of a study conducted in Vietnam reveals that, PLHIV, their families and hospital staff all perceive a comprehensive care and treatment programme as vital and should consist of social and psychological care which should be an integrated set of interventions (Loenzian, 2009). In the light of this fact, the National HIV and AIDS Strategic Plan 2011-2015 has a range of interventions comprising HIV treatment packages which aims at minimizing the spread of HIV, treatment, care and support for PLHIV which aims at reducing morbidity and mortality due to HIV/AIDS (Mahesh Devnania, 2012; UNHCR & WFP, 2004). On treatment, the plan focuses on increasing ART coverage in terms of increasing the number of ART sites and the number of PLHIV's on ARV's, improving referral systems linking clients to ART sites, strengthen HIV drug resistance monitoring and commodity supplies to ART sites. On care and support for PLHIV's, the plan intends to increase the proportion of PLHIV receiving care and support services by increasing the number of districts with functioning Home and Community-Based Care (HCBC), develop and disseminate HCBC policy and guidelines, provide psychosocial support to PLHIV, develop and disseminate guidelines for integration of nutrition into HIV treatment and care, institute therapeutic and supplementary food programmes for malnourished PLHIV and their family members and to develop and implement a reporting system for nutritional support to PLHIV.

A study in Vietnam that sought to provide the opportunity for PLHIV to describe their experiences of living with HIV and to identify and assess their needs for treatment, care and support found that, although provision of ART can help improve health outcomes and quality of life but provision to ART alone to PLHIV cannot address issues of stigma and discrimination nor will it ensure treatment adherence. However intervention that also addresses the social and structural dimensions of the challenges of HIV/AIDS is vital in ensuring that response to the crisis of the epidemic is comprehensive and sustainable (National AIDS and STI'S Control Programme (NASCOP), 2013).

2.3 Global Efforts to Address HIV/AIDS

Significant progress has been made all over the world in treatment, care and support interventions for PLHIV (WHO UNAIDS UNICEF, 2011). A total number of 2.7 million new infections were recorded in 2010 as compared to 3.1 million in 2001. Access to testing and counselling among pregnant women increased from 8% in 2005 to 35% in 2010, the health systems capacity to deliver treatment has also been expanded as the number of health centres providing ART increased from 7700 in 2007 to 22400 in 2010 (WHO UNAIDS UNICEF, 2011). Access to ART in low and middle income countries increased from 400,000 in 2003 to 6.65 million in 2010 and the number of children receiving ART also increased from 71500 in 2005 to 45000 in 2010. Pregnant women on ART to prevent mother to child transmission is estimated to be about 48% (WHO UNAIDS UNICEF, 2011). These achievements have been as a result of the historically unprecedented global response to the threat the HIV epidemic poses to human development.

2.4 HIV and Nutrition

HIV/AID exacerbate family food insecurity especially when productive household members are affected, this results in reduced individual and household economic capacity which may further burden the caregiver in their capacity to access food, which can result in malnutrition. Food insecurity among PLHIV has been associated with lower ART adherence, decline in physical health status, worse immunologic status and increased incidence of disease (Tsai et al., 2011; Weiser, 2011) .

HIV and nutrition are interrelated; HIV weakens the immune system and nutrition plays an important role in strengthening the immune system in all people including PLHIV. Adequate nutrition improves and strengthens the immune system whilst under nutrition and HIV both weakens or destroy the immune system over time (Houtzager, 2009). Due to the HIV infection, PLHIV experience loss of appetite, increase energy demands, mal-absorption, oxidative stress, and inadequate dietary intake which make them predisposed to under nutrition than the general population and this can lead to an increase risk of mortality. Under nutrition however, further weaken the immune system increasing susceptibility to infections and worsening the disease's impact (Castleman, 2008).

Wasting has been identified as one of the most visible signs of under nutrition as HIV progress to AIDS, this impact of nutrition on HIV has been identified in the early times of the epidemic (Houtzager, 2009). Despite the major advances in treatment and improved outcomes as a result of HAART, nutrition related complications such as wasting and weight loss still remain a major challenge for PLHIV (Mangili, 2006). A study in West Africa has observed that Body Mass Index (BMI) following the

diagnosis of HIV infection could predict death to a similar extent as CD4 cell count. PLHIV with a low body weights had an increased risk of death (Houtzager, 2009).

The relationship between HIV and nutrition cannot be over emphasised, under nutrition has been found to be associated with lower adherence to ART, decreased viral suppression, worst immunologic status, increase incidence of serious illness and increased mortality (Daniel, 2005). HIV related infections like tuberculosis and diarrhoea are significantly marked by nutritional status which is affected as a result of loss of appetite, lost of weight and wasting (Suneeta, 2007). With early diagnosis and use of ARV, nutritional and health status of PLHIV can be improved.

The relationship between nutrition and HIV is multifaceted and is therefore not always possible to identify one single cause as the main cause of declining nutritional status. The effect of pre-existing primary and secondary malnutrition can worsen the health of a PLHIV, Primary malnutrition which could be as a result of poor and or inadequate nutrient or food consumption due to poor eating habits and food insecurity. Secondary malnutrition however could result due to the infection which has caused increase energy expenditure, mal-absorption, and poor nutrient utilization (Houtzager, 2009).

Studies have shown that, opportunistic infections, abnormal use of substrates, including protein, reduced dietary intake, mal-absorption of high energy substances like fat, increased energy expenditure besides the results of food insecurity can cause energy deficits in PLHIV (WHO, 2005). Mangili *et al* who reviewed information from Nutrition for Healthy Living cohort study observed that, lower socioeconomic status of PLHIV also affects the adequacy of their dietary intake.

2.4.1 Nutrition Assessment Counselling and Support (NACS) Programs

The integration of nutrition interventions into HIV/AIDS services is increasingly becoming recognised as important to successful treatment outcomes as this evidence of integrated programming continues to emerge from several countries (Fields-Gardner, 2010; Greenblott, 2012). NACS is an organizing framework that is client centred and emphasises the nutrition assessment, counselling and support services that bring together existing nutritional services, protocols and actors along the continuum of care with referrals and effective coordination for optimal quality and impact (Greenblott, 2012). The relationship between nutrition and HIV is multifaceted and multidirectional for that matter needs response that is well coordinated and integrated (Castleman, 2008). Nutrition care and support services that are integrated will help truncate the vicious HIV and Malnutrition cycle as PLHIV will be assisted to improve, maintain, or slow the decline of nutritional status, manage symptoms, boost immune response and improve adherence and response to ART and other medical treatment (Castleman, 2008; WHO, 2004). The need to integrate nutrition interventions into HIV services has been on top of the agenda of most stakeholders in HIV/AIDS programmes. This global conversation dates back to April 2005 WHO consultation on nutrition and HIV/AIDS held in Durban South Africa with participants from all the major United Nations (UN) agencies, HIV networks, regional groups and donors for 20 countries across Southern and East Africa. The evidence for the urgent need for integrating nutrition into essential package of care, treatment and support for PLHIV was reviewed and declared during this consultation (Greenblott, 2012). The NGO community a year later further pushed forward this agenda with the Africa forum held in Zimbabwe in 2006 and again in 2009 in Malawi where about 170 food security and nutrition practitioners from 17 Sub-Saharan Africa countries

met to share best practices in integrated HIV food security and nutrition programming and to recommend most importantly to donors and policy makers about the need for integration. Sometime later in 2006 the USA government responded to these calls and released PEPFER policy guidance on the use of emergency funds to address food and nutrition needs. This all important step intended to integration contributed to the Food by Prescription (FBP) programming in Southern and East Africa (Greenblott, 2012). This viewed food as medicine in the context of HIV and acute malnutrition. As the FBP continued to expand, concerns about too much focus on just food within the context of care and treatment package was raised and that a nuanced, balanced approach was needed. NACS emerged with assessment and counselling placed at the forefront and with food support as an aspect of the support component (Greenblott, 2012). Since the emergence of NACS, different countries are at different stages of implementation with Kenya and Uganda being the early implementers. Some other countries like Ghana joined later on.

Several studies have reported the important role nutritional counselling has played in improvement of survival outcomes of PLHIV. It was observed that PLHIV who received nutritional counselling for seven months at the Komfo Anokye teaching Hospital responded positively to nutritional counselling as improvement in weight was observed among the PLHIV who received the nutritional counselling (Tabi, 2005).

Other studies found significant improvement in nutritional status among PLHIV (Nti, 2012; WHO, 2004). Marchidos et al. (2011) in a cohort study in Brazil that investigated the effect of nutritional counselling on PLHIV (Group A= n= 18, Group

B = n = 35) with lip dystrophy who received nutritional counselling at every appointment for twelve months and six months respectively. Improvement in serum triglyceride, HDL levels and increase in lean mass was observed in those followed for 12 months (Monteiro, 2011).

2.4.2 NACS Program in Ghana.

In recognition of the global response to the vital role of food and nutrition interventions in response to HIV/AIDS, many countries including Ghana have adopted the NACS approach in integrating food and nutrition interventions into existing national HIV care and support services. In this regard, MOH Ghana developed the national guidelines on nutrition care and supports for PLHIV to kick start the integration of nutrition into HIV services. These national guidelines recommended the NACS approach to address nutrition problems specific to PLHIV, unlike other nutrition programmes that only tried to address food security problems. NACS was first implemented in Ghana in 2010 in 11 ART sites and later scaled up to 42 ART sites in 2012 throughout the whole country in recognition to the success of the pilot sites (Ghana Health Service, 2011). In providing NACS services, facilities are expected to be well equipped in terms of logistic and human resources capacity to deliver such services. In terms of logistics, facilities are expected to be well equipped with job aids such as functional weighing scales, stadiometers, Information Education Communication (IEC) guides, and Behaviour Change Communication (BCC) materials, hand washing and ORS preparation demonstration materials. Health staffs that are to provide nutrition counselling services are expected to have their capacities built through Ministry of Health (MOH) approved training in HIV and nutrition. This is supposed to help strengthen the capacity of health personnel to deliver NACS, staff

of the GHS were trained on HIV and nutrition in all the facilities carrying out NACS services. Protocols were also developed to guide in the implementation. NACS job aids have been designed and distributed to the ART sites where NACS services are delivered (Ghana Health Service, 2011).

CHAPTER THREE

3.0 METHODOLOGY

3.1 Study Design

The study used a cross-sectional design involving the use of a standardized checklist that is designed by Food and Nutrition Technical Assistance (FANTA) (Castleman, 2008) to collect data on the quality of nutrition counselling services provided at the various ART sites. In addition, a checklist was used to collect data on the availability and use of NACS related educational material and equipment. Data on nutrition knowledge of PLHIVs and the capacity of health personnel to provide NACS services to PLHIVs was collected using a structured questionnaire that has been designed and pretested through face-to-face interviews. This was used to assess the PLHIV's basic nutrition knowledge and as to whether the health personnel providing NACS services have any background training in nutrition and HIV that has been approved by the Ministry of Health.

3.2 Study Area/ Location

The study was conducted in 8 ART sites in six regions in Ghana. These included the ART sites of Korle-bu teaching Hospital, Ridge regional Hospital, Princess Marie Louis children's hospital in the Accra metropolis of the Greater Accra region. Others include St Francis Xavier Hospital at Assin fosu in the central region, Efia Nkwanta hospital in Sekondi of the Western region, Ho regional hospital in the Volta region, Baptist Medical Centre in Nalerigu in Northern region and Bawku Presbyterian hospital in Bawku in the Upper east region

3.3 Variables

The variables that were measured in the study included nutrition knowledge of PLHIV who were seeking care at the selected ART sites included in the study. This includes; knowledge on three basic ways of increasing energy intake, two or three critical times to wash hands properly, recommended safe food handling, knowledge of eating three or more times a day and the advantages of eating nutritionally adequate diet. Also measured was availability and use of NACS related educational materials and equipment and this included Behaviour Change Communication (BCC) tools like posters on nutrition and HIV posted at vantage points of the ART sites, functional weighing scales, MUAC tapes, Counselling cards on nutrition and HIV, Height or length boards, food, hand washing, and ORS demonstration Material availability and whether they are used. Capacity of health personnel and Quality of nutrition counselling was also measured using a standardised checklist.

3.4 Study Population

The study population included adult PLHIVs on ART seeking care at these ART sites and were willing to participate in the study. Health personnel delivering services to PLHIVs at these ART sites such as Counsellors, Nurses, Pharmacists, Dieticians and Nutritionist were included. The ART sites themselves were units of study, where availability and use of education material and equipment for NACS was assessed.

3.5 Sample Size

The study was a clinic based survey. The estimated sample size was based on PLHIV population of about 111,304 in the six study regions in Ghana. A sample size of 266 was determined with Epi Info Statistical software at 95% confidence level with expected proportion of PLHIV with adequate nutrition knowledge as 50% with a

worse acceptable result of 44%. This was rounded up to 280. However, actual data on the field yielded a sample size of 261 PLHIV. A sample size of 8 active ART sites was selected from the 42 ART sites implementing NACS in Ghana.

3.6 Sampling Procedure

This study is a clinic based survey that recruited respondents from the selected ART sites in the Ghana. The estimated sample size is based on PLHIV population of about 111,304 in the study regions. Recruitment of PLHIV respondents was done using purposive sampling technique which was done jointly with the clinic staff. As clients came in for therapy; clinic staff assigned to the study introduced the study to the client. Clients who expressed interest to participate were then asked to speak to a trained research assistant who described the study protocol in detail to them and obtained informed consent. Thereafter, the questionnaire was administered. For the selection of ART sites, a simple random sampling technique was used to select 8 ART sites. The names of the various active NACS implementing ART sites were written on pieces of papers and picked at random to select the various ART sites. Also, for the health personnel delivering service at the various ART sites, personnel were conveniently sampled.

3.7 Data collection Technique/ Methods and Tools

Structured questionnaire were administered to a sample of 261 PLHIVs, and 13 health personnel, with 33, 31, 38, 30, 37, 34, 27 and 31 PLHIV respondents at Korle-bu, Princess Marie Louise, Ridge, Ho, Effie Nkwanta, Saint Francis Xavier, Baptist Medical Centre and Bawku Presbyterian Hospital respectively and two health care providers at each ART site except for Baptist Medical Centre, Ho and Bawku Presbyterian that had only one health personnel participate in the study. Interview

with the use of structured questionnaire was the main instrument used for data collection. I also participated in two nutrition counselling sessions each at Ho, Effie Nkwanta and Saint Francis Xavier and only one session at Princess Marie Louis by way of observing how these counselling services were done using a standardized checklist to determine the quality of the nutrition counselling and also to cross check what was observed on the availability and use of NACS related educational materials and equipment.

3.7.1 Questionnaire

The questionnaire consisted of several sections, which were made up of background characteristics of the respondent, household characteristics, Occupation, Income information, Health history, Clinical Stage information and information about the nutrition knowledge among PLHIV. Background information collected included age, sex, marital status, educational status and occupation. Income Information that was also collected included; whether the client is currently employed, main occupational status of client and income earned from main occupation in the last one month, whether they engage in any additional occupations for income and what kind of additional occupation they engage in. Also included were questions on whether they have ever received monetary and non-monetary gifts from family, friends, government, NGO's and religious organisations.

3.7.1.1 Client's Participation in Nutrition Assessment and Evaluation of Nutrition Services

Information collected under this section included when the client was last counselled on how to eat concerning the client's HIV status, if any family member of client has

received counselling on how to eat in relation to HIV status, if client has ever been taught how to prepare ORS, proper hand washing and at what times or situation to wash hands properly.

3.7.1.2 Clients' Knowledge on Nutrition

Information collected from this section included, if client know three basic ways of increasing energy intake, two or three critical times to wash hands properly, recommended safe food handling, knowledge of eating three or times a day and the advantages of eating nutritionally adequate diet.

3.7.2 Tools

3.7.2.1 Observation

A standard checklist by Food and Nutrition Technical Assistance (FANTA) (Castleman, 2008), was used to assess the quality of the nutrition counselling delivered at the ART sites. A second checklist was also used to assess the availability and use of NACS related educational material and equipment for the provision of a comprehensive nutrition intervention.

3.7.2.2 Checklist on nutrition counselling quality

The checklist used included, whether counsellor asked how client is feeling or what his or her nutritional or health concerns are at the time of counselling, whether counsellor weighed and recorded clients weight elsewhere during the counselling session. Also assessed was if counsellor asked client of nutrition related symptoms experienced within the past two weeks, if the counsellor asked client of appetite, functional status and food and liquids consumed during the day before counselling is taking place. The checklist will also seek to know if counsellor provided information

and guidance on topics that correspond to nutrition assessment done earlier, set nutrition goals with client, discuss options to accomplish nutrition goals and developing optional plans if necessary, discuss the challenges client might face in implementing the plan to achieve nutrition goals. It also sought to know if counsellor scheduled a follow-up visit with client, greeted client before counselling session, communicate in a language based a clients knowledge, cultural values and beliefs, give client the opportunity to ask questions and if clients questions were answered. Marks were allocated to when the response was yes to the various questions that were observed and no marks were allocated when the response was no, for good quality nutrition counselling, a counsellor should score 75% and above.

3.7.2.3 Checklist for Facility Level Assessment

This checklist was also used to assess if counselling is done individually or in a group, if there is a separate room or area which provides audio and visual privacy for individual counselling, if dietary assessment and anthropometric measurements of clients are taken and recorded. It will also assess if therapeutic, supplementary food products and a food basket is included in the food assistance provided at those facilities. Availability and use of counselling material, copies of guidelines on nutrition, written protocol for nutrition counselling services and referral, if BCC materials (e.g. posters) or protocols on nutrition were displayed at waiting areas and pharmacy, and if food ,ORS, and hand washing demonstration materials were available and used.

3.7.3 Quality Control

Pre-testing of questionnaire was done to test respondents understanding of the questionnaire, to ensure validity and reliability of the data that was collected. Two

people were recruited and trained to assist in the data collection process. This helped to ensure that the objectives of the research were addressed. For the questionnaires that were returned, each one was edited for consistency and accuracy to ensure that every part is filled correctly before further processing of the data. All completed questionnaires were checked and edited for consistency and accuracy

3.8 Data Processing and Analysis

Data was coded and entered into a Census and survey processing systems (CSPro) version 5.01 database with each questionnaire entered sequentially. Data cleaning was done and statistical package for social sciences (SPSS) version 20 was used for data analysis. Data was presented using statistical tables based on the data entered. For the questionnaire on nutrition knowledge of clients, proportion of PLHIV's who were able to name three basic ways of increasing energy intake, two three critical times to wash hands properly, two or more recommended ways of safe food handling, knowledge of eating three or more times a day and two or more advantages of eating a nutritionally adequate diet was used to describe their knowledge on nutrition. On the capacity of health personnel to provide NACS services to PLHIV, the proportion of personnel at the various ART sites that have had an MOH approved training on nutrition and HIV, when they last had such training and also their background training was used to describe their capacity to provide nutrition services to PLHIV. On nutrition quality checklist, marks were allocated to the various questions on the checklist if responses were yes and total marks scored were summed up. If scored marks sum up to 75% or more, the nutrition counselling is said to be of good quality. Proportion of counsellors who have score 75% or more was used to describe the quality of nutrition counselling at the various ART sites. For checklist on availability

and use of equipment and educational material, proportion of ART sites with functional weighing scales, nutrition counselling guides, posters at vantage points like, where clients are counselled, receive medication and waiting area, demonstration material on ORS preparation and hand washing and national guides on nutrition and HIV and their use during nutrition counselling was used to describe if equipment and educational material are available and whether they were used during nutrition counselling.

3.9 Ethical Considerations

Ethical clearance was sought from the ethical review committee of the Ghana Health Service, permission from the management of the various hospitals the research was carried out, and the management of the ART sites before the commencement of the study. With the assistance of the head of the ART sites of the various hospitals, respondents were briefed about the study and assured of confidentiality. Verbal or written consent was obtained from each of the PLHIV's before the questionnaires were administered to them. PLHV's were also assured that the information they were providing by taking part in the research will be protected. All data was protected in the offices of the school of Public Health; only research assistants were allowed access to it. The participants were made aware of no direct benefits by participating in the study however information obtained from this study will be used to improve nutrition programme planning and implementation for PLHIV. They were also made aware of no foreseeable risk in participating in this study and that, they have the right not to participate in the study if they choose to. The relationship between nutrition and HIV, the importance of the study, what it involves, and the implications to society as a

whole and to the respondent was also explained to the PLHIV before questionnaire were administered at a mutually agreed place. This study is self-sponsored with assistance from FANTA2 project of the USAID and there is no conflict of interest whatsoever.

CHAPTER FOUR

4.0 RESULTS

4.1 Description of Study Participants

4.1.1 People Living with HIV (PLHIV)

Table 4.1 and 4.1b highlights the background characteristics of PLHIV and service providers. Data from two hundred and sixty one PLHIV receiving care at the ART Sites of eight Government Hospital, Thirteen health workers from and the ART sites of these Hospitals were included in the study. Almost 15% of them were from Ridge Regional Hospital, 11% from Baptist Medical Centre and about 12% from Bawku Presbyterian Hospital. A little over 75% of all PLHIV were females. Almost all (90%) of the PLHIV have ever received counselling on how to eat concerning their HIV status. The average CD4 count of the PLHIV is 436.

Almost 50% of PLHIV were married. Less than 30.0% of PLHIV have never had any form of education, almost (50%) of PLHIV's have completed Junior high school or Middle school. Also, 81% of PLHIV are employed; however, about 47% of PLHIV were traders with an average reported monthly income of 303.24 Ghana cedis. Only a little over 18% of PLHIV engage in any other economic activity besides their main occupation.

4.1.2 Service Providers

A total of 13 health workers providing nutrition services for the 261 PLHIV's participated in the study. Two Health workers from each facility except for Baptist Medical centre, Bawku Presbyterian and Ho where only one health worker each participated in the study. They included four Nurses, two Dieticians, two models of hope personnel, a Statistician, two Health educators and two Psychologists. All

respondents came from eight ART sites from six regions of Ghana. Almost 70% of health workers who participated in the study were females. About 70% of them were Dietician, Nurses, Nutritionist or counsellors and have had tertiary Education.

4.1.3 ART Clinics

A total of eight (8) ART sites from six (6) regions of Ghana currently piloting the NACS programme is where all 261 PLHIV's and 13 health workers were drawn from.

Table 4.1a Characteristics of Persons living with HIV (PLHIV) included in the study

Characteristics	No of PLHIV(N)	Percentage of PLHIV (%)
Age of PLHIV	12	4.6
18-25	17	6.5
31-35	50	19.2
35-40	51	19.5
Above 40	131	50.2
Sex		
Male	64	24.5
Female	197	75.5
Educational status		
No education	74	28.4
Primary	46	17.6
JHS/Middle school	100	38.3
SHS/Voc/ Tech	23	18.8
Post sec	4	1.5
Tertiary	14	5.4
Marital status		
Not married	145	48.3
Married	27	10.3
Divorced	47	18
Widowed	38	14.6
Separated	4	1.5
Employment status		
Yes	212	81.2
No	49	18.8
Main occupation		
Trader	99	46.7
Skilled Artisan	39	18.4
Unskilled Artisan	22	10.4
Unskilled labour	24	11.3
Salaried worker	28	13.2
Nutrition counselling received		
Ever received	235	90
Never received	25	9.6

PLHIV – People Living with HIV

Table 4.1b Characteristics of Health workers included in the study

Characteristics	No of Health workers (N)	Percentage of Health workers (%)
Sex		
Male	4	31.8
Female	9	69.2
Educational status		
No education		
Primary		
JHS/Middle school		
SHS/Voc/ Tech	2	15.5
Post sec	3	23.1
Tertiary	8	61.5
Profession		
Dietician	2	15.4
Nutritionist	0	0
Nurse	4	30.7
Trained counsellor	2	15.4
Others	5	38.5

4.2 Nutrition Knowledge of PLHIV

About 81% of PLHIV did not have adequate knowledge on basic ways to increase energy intake. Almost 90% of PLHIV had knowledge on the need to eat three or more times a day. Almost 40% of PLHIV did not have adequate knowledge on recommended safe food handling which includes; appropriate storage of perishable food, eating warm food, reheating food before eating and using clean cups, plates and spoons. Seventy three percent (73%) of PLHIV had adequate knowledge on the advantages of eating a nutritionally adequate diet. Also, 85% of PLHIV had knowledge on two or more critical times to wash their hands which includes; before eating, before preparing meals, after visiting the toilet and when taking medication. The results are presented in table 4.2

Table:4.2 Nutrition knowledge of PLHIV

Characteristics	n	%
Knowledge on recommended safe food handling		
Adequate	164	63
Not Adequate	97	37
Knowledge on eating three or more times a day		
Adequate	233	89
Not Adequate	28	11
Knowledge on basic ways to increase energy intake		
Adequate	49	19
Not Adequate	212	81
Knowledge on advantages of eating a nutritionally adequate		
Adequate	190	73
Not Adequate	71	27

4.3 Capacity of Health Workers to Provide NACS

Korle-bu teaching Hospital had two health workers who participated in the study. They were neither nurses/dieticians/nutritionist/counsellors nor have they ever had any MOH approved training in nutrition and HIV. A nurse and a dietician from Princess Marie Children's Hospital who provide counselling services for PLHIV both

have had an MOH approved training in nutrition and HIV. However, the training received is over twelve months ago. Ridge Hospital however had a trained counsellor and Model of Hope personnel providing counselling services. The counsellor however had MOH approved training in nutrition and HIV over 12 months ago. Ho regional Hospital had a resident dietician who has not had any MOH approved training in nutrition and HIV. In Effie Nkwanta regional hospital, two nurses who provide counselling for PLHIV participated in the study. They have both had MOH approved training in nutrition and HIV over 12 months ago. A trained counsellor and model of Hope personnel participated in the study from Saint Francis Xavier; they have both received MOH approved training in nutrition and HIV over 12 months and less than 6 months ago respectively. Baptist Medical centre had only one nurse who has never received MOH approved training in nutrition and HIV providing counselling services to PLHIV. Bawku Presbyterian Hospital had a statistician who had received an MOH approved training in nutrition and HIV participate in the study. Table 4.3 highlights the results of the capacity of health workers to deliver NACS services to PLHIV

Table 4.3 Background Training of Health Workers Providing NACS Services

Indicator Assessed	Facility							
	KBu	PML	RD	Ho	EFN	SFX	BMC	BP
No of Counsellors interviewed	2	2	2	1	2	2	1	1
No who have Received MOH approved Training in Nutrition and HIV	0	2	1	0	2	2	0	1
No of such training received	0	1	1	0	2	1	0	1
No who are either Dietician/Nutritionist/Nurse/ Counsellor	0	2	1	1	2	1	1	0
No who have received training in < 6mnths	0	0	0	0	0	1	0	0
No who have received training 6-12 mnths	0	0	0	0	1	0	0	0
No who have received training >12 mnths	0	2	1	0	1	1	0	1

MOH- Ministry of health

KBu	Korle-Bu	SFX	St Francis Xavier Hospital
PML	Princess Marie Louis	BMC	Baptist Medical Centre
RD	Ridge Hospital	BP	Bawku Presby Hospital
EFN	Effie Nkwanta Hospital		

4.4 Nutrition Counselling Quality

Table 4.4 presents results on scores on individual level nutrition counselling. A standard nutrition quality checklist from FANTA was used to observe one-on-one nutrition counselling. The checklist had various scores for questions ranging from whether counsellor asked how PLHIV is feeling, if PLHIV is greeted, if asked what his or her nutritional or health concerns are, if weight is taken and recorded

somewhere, if asked if nutrition related symptoms are experienced in the past two weeks, about the PLHIV's appetite, if nutrition goals are set with PLHIV and options to accomplish to achieve goals discussed to whether PLHIV was allowed to ask questions and if they were answered. Marks were allocated if response were yes to the various questions and no marks were allocated if response were no. For good quality nutrition counselling, a counsellor should be able to score 75% and above. All facility under study provides both individual and group level counselling services for PLHIV; individual level counselling is usually done when PLHIV are about beginning ART. Most of the emphasis is usually on ARV adherence with an occasional mention of nutrition. The group level counselling is usually done when PLHIV's are waiting to receive their routine monthly services. Topics discussed are usually general with an occasional mention of nutrition again at this level. The only one-on-one nutrition counselling observed was done for PLHIV's who were visibly wasted, seven of such nutrition counselling sessions were observed. Two each of such sessions were observed at three of the facilities except for Princess Marie Louise where only one counselling session was observed. This counselling sessions done at Princes Marie Louise children's hospital, Saint Francis Xavier Hospital, Effie Nkwanta regional Hospital and Ho regional Hospital for PLHIV was done for PLHIV's who were visibly wasted. The average score of where two sessions were observed was calculated and the scores obtained were 85%, 85%, 90% and 75% at Saint Francis Xavier Hospital, Ho regional Hospital, Princes Marie Louise children's hospital and Effie Nkwanta regional Hospital respectively, no nutrition counselling on one-on-one basis was observed at the other facilities.

Table 4.4: Scores on Nutrition Quality Checklist

Facility	Scores (%)
Princess Marie Louise	90
Ho	85
Effie Nkwanta	75
Saint Francis Xavier	85
Ridge	Not observed
Korle-Bu	Not observed
Baptist Medical	Not observed
Bawku Presby	Not observed

4.5 Availability and Use of Educational Material and Equipment

Table 4.5 presents findings on the availability and use of educational materials and NACS related equipment. All 8 facilities had functional weighing scales that measure in kg to the nearest 0.1kg, MUAC tapes measuring in cm to the nearest 0.1 cm, and also therapeutic/supplementary food products except in Korle-bu. Therapeutic/ supplementary food products were observed given to PLHIV who needed it in three ART sites.

The use of the weighing scales was observed in all eight ART sites, that of MUAC tapes in three ART sites and that of length/height board in seven ART sites. Baptist medical centre and Bawku Presbyterian Hospital were the only facilities that provided Food assistance for PLHIV. However, food given to PLHIV was not observed. Also,

only three facilities had counselling cards on nutrition and HIV which were not used during counselling as was observed. None of the Facilities however had food

Table 4.5 Availability and use of NACS related Educational material and Equipment, hand washing and ORS demonstration equipment.

Tools	If Facility has	Observed if used
Weighing scale measuring in kg to the nearest 0.1kg	Yes	Yes
Height/Length board measuring in cm to the nearest 0.1 cm	Yes in 7	
MUAC tapes measuring in cm to the nearest 0.1 cm	Yes	observed in 3 facilities
Counselling cards on nutrition and HIV	Yes in3	No
Therapeutic/Supplementary food products	Yes in 7	observed in 3 facilities
Food Assistance	Yes in 2	No
ORS demonstration Equipment	No	No
Hand washing demonstration Equipment	No	No
Food Demonstration Equipment	No	No

ORS – oral rehydrated salt MUAC- mid-upper arm circumference

4.6 Display of Behaviour Change Communication Protocols on Nutrition and HIV at ART Centres

Table 4.10 presents information on whether Behaviour Change Communication (BCC) Protocols on nutrition and HIV were displayed at vantage points like Waiting areas, Educational areas, Pharmacy and Counselling areas. Korle-bu, Teaching Hospital, Baptist Medical centre, Bawku Presbyterian Hospital and Effie Nkwanta

regional Hospital did not have any protocols or posters on nutrition and HIV displayed at either the Waiting area, Pharmacy, Educational area or Counselling area. Princess Marie Louise children's Hospital and Saint Francis Xavier had BCC protocols on nutrition and HIV displayed at all vantage points except for the Waiting area, Ridge regional Hospital also had BCC protocols on nutrition at all vantage points except for Educational area. Ho regional Hospital had BCC protocols on nutrition and HIV displayed on at waiting area and education

Table 4.6: Display of BCC Protocols and Materials on Nutrition and HIV

Service Point	FACILITY							
	Kbu	**PML**	**RD**	**Ho**	**EFN**	**StF**	**BMC**	**BPH**
Waiting Area	No	No	Yes	Yes	No	No	No	No
Pharmacy	No	Yes	Yes	No	No	Yes	No	No
Education Area	No	Yes	No	Yes	No	Yes	No	No
Counselling Area	No	Yes	Yes	No	No	Yes	No	No

Kbu Korle-Bu
PML Princess Marie Louis
RD Ridge
EFN Effie Nkwant
StF St Francis Xavier
BMC Baptist Medical Centre
BPH Bawku Presby Hospital

CHAPTER FIVE

5.0 DISCUSSIONS

The objectives of this cross-sectional study were to determine the adequacy of nutrition counselling services delivered as part of the NACS programme in Ghana, to assess the availability and use of the NACS related educational materials and equipment, to assess the capacity of health workers to provide nutrition assessment, counselling and support services and to assess the nutrition knowledge of PLHIVs seeking care at eight selected ART site in Ghana

5.1 The Adequacy of Nutrition Counselling Services Delivered as Part of the NACS Programme in Ghana

The study explored if nutrition counselling was done on one-on-one basis, if it was part of the routine services PLHIV receive on regular basis and also to determine the quality of the nutrition counselling if it was done at all. Findings found that, routine nutrition counselling on one-on-on basis was not done at any of the facilities, the only time, PLHIV's benefited from nutrition counselling was when they were to begin ART so as part of the ARV adherence counselling, nutrition is mentioned usually with emphasis on the foods that counter indicate the effectiveness of ARV's. PLHIV's may again encounter nutrition counselling again when they come for their routine services, so as they wait to receive services a health workers comes to give talks to them on several topics of which nutrition is sometimes part. This is usually done at the group level. The only time one-on-one nutritional counselling was observed during the study was when visible wasting was noticed in a PLHIV; this was done before the person is put on ready–to-use therapeutic food. The seven nutrition counselling sessions were

observed at four ART sites, Princess Marie Louise, Ho regional hospital, Saint Francis Xavier hospital and Effie Nkwanta regional hospital. The average scores recorded were 90%, 85%, 85% and 75% respectively. However, according to Castleman (2008), one-on-one individual nutrition counselling is a critical component of comprehensive care and treatment for PLHIV since this provides the service provider the opportunity to discuss the PLHIV's nutrition and diet situation and to provide the necessary information based on what has been discussed in relation to diet and nutrition (Castleman, 2008). Evidence shows that routine one-on-one or individual level nutritional counselling is effective for improvement of the nutritional status of PLHIV. In a study by Marchidos et al (2011) in Brazil among PLHIV with lipodystrophy who received nutritional counselling on one-on-one basis for 12 months, found significant improvement in their serum triglyceride, HDL levels and increase in lean mass. Tabi et al (2005) also reported improvement in weight of PLHIV's who received individual level nutritional counselling as part of their routine services at the Komfo-Anokye Teaching Hospital in Ghana for seven months (Tabi, 2005). According to the FANTA criteria for nutrition counselling for PLHIV's to be of good quality, the observed counselling with the use of the nutrition counselling quality checklist should score 75% or more (Castleman, 2008). The findings of the study shows that the counselling sessions observed at Princess Marie Louise, Saint Francis Xavier, Effie Nkwanta and Ho hospital were of good quality. However this cannot be said of the other facilities under study since no one-on-one nutritional counselling was observed there during the study.

5.2 Nutrition Knowledge of PLHIV

Inadequate nutrition knowledge among PLHIV can contribute significantly to rapid disease progression (Bukusuba, 2010). However not much is known about the level of nutrition knowledge of PLHIV's in developing countries (Bukusuba, 2010). Adequate nutrition knowledge among PLHIV can contribute significantly to the reduction in morbidity, mortality and improvement in the overall quality of life even though not much emphasis seems to be made in improving this aspect of care for PLHIV(Bukusuba, 2010).

This study revealed that 85% of respondents in the study have knowledge on two or more critical times to wash their hands properly; which according to Castleman (2008) is adequate knowledge. This however does not reflect the inadequacies in the staffing situation at most of the ART sites as have been found by this study to be inadequate.

A proportion (89%) of respondent reported to have knowledge on the need to eat three or more times a day, however this does not always translate into practice as was reported in Bukusuba (2010). A cross-sectional study that sought to measure nutrition knowledge and practice among PLHIV in Uganda, only 21.8% of respondents reported to consume three or more meals a day (Bukusuba, 2010).

This study found that, 63% of PLHIV reported to know two or more recommended ways for safe food handling, However a study in north of Jordan among female students found that only 33.9% had knowledge on safe food handling (Tareq, 2010). According to Castleman (2008) PLHIV should know that they have to use clean cups, spoons and bowls for food, store perishable food appropriately, eat food warm and the

need to reheat food that is gone cold before eating. Therefore knowledge of two or more of these recommended safe handling is considered as having adequate knowledge on safe food handling. Most (63%) of respondent in this study had adequate knowledge on safe food handling. Noticeably, majority (81%) of respondents did not know at least any three basic ways like using sugar, oils, or eggs, increasing portion size of meals and increasing the frequency of eating of meals as a way of increasing their energy intake as have been defined by Castleman (2008). The study therefore found that most (81%) of respondents did not have adequate knowledge on at least three basic ways to increase energy intake.

The study also found that about 73% of respondents knew two or more advantages of eating a nutritionally adequate diet as far as their HIV status is concern. A study by Nti et al (2012) to determine the nutrition knowledge, diet quality and nutritional status of PLHIV's in Ghana showed that, 91% of respondent had fair to adequate knowledge of nutrition and the reason why food is eaten (Nti, 2012).

5.3 Capacity of Health Workers to Deliver NACS

According to Barry (2008), there is the need for a trained and competent workforce because they have the necessary knowledge, skills and abilities to translate policy objectives and current research knowledge into effective action.

The study revealed that out of the thirteen health workers interviewed at the various ART sites, eight of them are either nurses/nutritionist or dieticians/counsellors. Also, eight of them have ever received MOH approved training in nutrition and HIV; however six of the eight who have received training had the training over twelve months ago. According to Castleman (2008), for health workers to provide NACS

services to PLHIV, they should have the appropriate training to enable them provide the correct information to clients and deliver NACS services appropriately. For that matter, health workers should receive an MOH approved training in Nutrition and HIV and should either be nurses/ nutritionist or dietician/ counsellors (Castleman, 2008). An initiative of the ministry of health of Mozambique and Alliance international in two provinces to integrate ART into existing primary health care system in many areas of service delivery for PLHIV, reported that the training in counselling and testing given to staff providing services for TB clients resulted in a drastic increase in number of TB clients who tested for HIV. An increase from 5% to 90% at 28 facilities was recorded and 65% of those who tested positive initiate ART (James, 2010).

5.4 To Assess the Availability and Use of the NACS Related Educational Materials and Equipment

The study also explored the availability and use of NACS related equipment and materials and findings revealed that, all facilities had MUAC tapes that measures in cm to the nearest 0.1cm, therapeutic/ supplementary food products except for Korle-bu teaching Hospital, functional weighing scales measuring in kg to the nearest 0.1kg, height/ length board measuring in cm to the nearest 0.1cm except for Baptist Medical centre. The study also found that Ho regional hospital, Effie Nkwanta Regional Hospital and Ridge Regional Hospital were the only facilities with counselling cards in nutrition and HIV. Food assistance was found to be given to PLHIV at only Baptist medical centre and Bawku Presbyterian Hospital. Hand washing, Food, and ORS demonstration equipment were any not available in any of the eight ART sites. It was observed that, functional weighing scales were used at all ART sites MUAC tapes use

and giving of therapeutic/supplementary food to PLHIV who needed it was also observed at three and four sites. The use of length/ height board and counselling cards on nutrition and HIV was not observed at any of the facilities.

The study further revealed that all facilities except for Korle-bu, Baptist Medical centre, Bawku Presbyterian Hospital and Effie-Nkwanta regional Hospital had BCC/IEC materials on nutrition and HIV displayed at any of the following places (Counselling area, Waiting area, Pharmacy and Educational area). Ridge Hospital and Saint Francis Xavier had BCC/IEC materials displayed at three of the above mentioned places. Princess Marie Louise children Hospital and Ho regional Hospital had BCC/IEC materials displayed at two places.

However, according to Castleman (2008), to provide Nutrition Assessment, Counselling and Support for PLHIV, there is the need for facilities to be provided with equipment and job aids to enable them deliver effective and efficient nutrition service for PLHIV

CHAPTER SIX

6.0 CONCLUSIONS AND RECOMMENDATIONS

6.1 Conclusions

Routine nutrition counselling on one-on-one basis for PLHIV was not observed at any of the eight study sites. The only time the PLHIV get information about nutrition is at their initiation of ART or whilst waiting to receive routine monthly services which is usually meant for refill of ARV's and general check-up. The only observed individual level nutrition counselling was provided for PLHIV with visible wasting. Seven of such sessions were observed in four sites and they were of good quality. Inability to provide individual level nutrition counselling could be as a result of inadequate level of staffing at the various ART sites as it was found that some ART sites had only one or two health personnel providing ART services.

This should inform efforts at encouraging service providers to improve upon the staffing situation at the ART sites to improve upon nutrition services provided for PLHIV. Because individual level nutrition counselling provides the opportunity for health care providers to provide nutrition interventions tailored to the specific needs of each PLHIV. Since each one of them will have specific nutritional needs and challenges which will need to be addressed differently. There is also the need for privacy for PLHIV's to be able to comfortably discuss the challenges they may be having with their nutrition and diet. Nutrition counselling services for PLHIV was found to be inadequate.

Regarding nutrition knowledge of PLHIV, findings have shown that, most respondents have adequate knowledge on two or three critical times to wash hands

properly, the advantages of eating a nutritionally adequate diet, the need to eat three or more times a day and the recommended ways for safe food handling. However, most PLHIV did not have adequate knowledge on three recommended basic ways to increase energy intake. To help reduce disease progression and improve the overall quality of life for the PLHIV, there is the need for them to know basic ways to increase their energy intake since their energy requirement is usually higher than normal. This is needed to maintain a healthy weight.

Although most of the health workers providing NACS services at the various ART sites have their capacities built to deliver NACS services to PLHIV, there are still health workers providing NACS services to PLHIV who have not had any MOH approved training and are neither nurses/nutritionist/dieticians or counsellors. This is because some of the personnel who have been trained are either on transfer somewhere or have gone on retirement. Also, most of the health workers who have been adequately equipped with the skills to deliver NACS services received their trainings over twelve months. This should inform the government and initiators of NACS of the need for refresher trainings within regular time intervals.

Regarding the availability and use of NACS related equipment and materials, results from this study found that ART sites are not adequately equipped to deliver NACS services. Most ART sites did not have counselling cards on nutrition and HIV and did not provide food support for PLHIV's like the aged and whose are in the advance stage of the disease and for that matter may not be able to work. Also, none of the ART site had food, Hand washing and ORS demonstration equipment. It was also found that most of ART site did not display BCC/IEC materials on nutrition and HIV like posters at vantage points where PLHIV can read or be communicated to.

Programme planners should ensure that before implementing programmes like NACS, which is meant to deliver a comprehensive nutrition services for PLHIV, the requisite equipment and materials are provided to ensure that PLHIV's receive the needed services.

6.2 Recommendation

The following recommendation are being made in light of the findings of this study in order to ensure that PLHIV receive a comprehensive nutrition care as part the routine ART services to ensure improvement in their nutritional status and overall quality of life.

1. In view of the inadequacy of nutrition counselling for PLHIV, efforts should be made by the Ministry of health at improving the staffing situation at the various ART sites. NGO's that initiate programmes should also provide health workers with the requisite training and skills needed to deliver nutrition assessment and counselling services. There should also be refresher trainings for health personnel on regular basis.
2. There should also be regular monitoring by the Ministry of Health to ensure that health workers who have gone on transfer or retirement are replaced with trained and competent staff to ensure continuity of services and also to ensure that protocols of the programme are being adhered to.
3. Health workers need to be motivated by programme developers, to help deliver NACS services for PLHIV because the workload is enormous and the staffing situation is inadequate considering the PLHIV to health worker ratio at the various ART sites.

4. Efforts must be made by programme designers and other stake holders to ensure that, the equipment and materials needed to deliver comprehensive nutrition service for PLHIV are provided
5. There is also the need to improve the nutrition knowledge of PLHIV through BCC/IEC materials like posters that communicate in languages that the PLHIV can easily read or comprehend whilst they receive routine services. Therefore there is the need for the Health promotion Department of the Ministry of Health to collaborate with the Centre for National Culture and Bereue of languages to develop posters on nutrition and HIV in some of the most spoken local languages and to ensure they are posted at vantage points at the ART sites.

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APPENDICES

Appendix 1. Consent Form

Investigator: Mariama Bogobire Yakubu

Address: Box LG 13, Department of Population, Family and Reproductive Health, School of Public Health, College of Health Sciences University of Ghana, Legon. Tel. 024338934 E-mail. bogobirem@yahoo.com.

General Information about the Research

Studies have shown that HIV infection worsens with malnutrition, the nutritional status of the PLHIV therefore is imperative for successful treatment outcomes with ARV's. Based on this fact, Ghana like some other countries have put in place nutrition interventions for PLHIV and one of such interventions is NACS. The research seeks to evaluate the implementation of the nutrition intervention programme (NACS) for PLHIV to understand how health facilities are well equipped in terms of Logistics and human resource capacity to implement the NACS programme and the impact of the programme on PLHIV,s who are the beneficiaries of NACS. This is to help in the future design and implementation of nutrition programmes for PLHIV. Study participants will be contacted to participate in an interview which will take about 45 minutes for PLHIV's and 15 minutes for health personnel at the ART sites to complete. Details about the various procedures are indicated below.

Possible Risk and Discomforts

This study poses minimum risk to participants Interviews will relate to the experiences of the participants as it relates to the nutrition knowledge of the PLHIV

and the background training of health personnel in nutrition and HIV, how long that training has been and the nutrition knowledge of the Health personnel delivering NACS services to PLHIV

Possible Benefits

There will be no direct benefit to the participants; information obtained from this study will provide understanding the challenges and best practices of nutrition intervention programmes for PLHIV for improvement in programme design and implementation

Description of level of Research Burden

Each study participants will be engaged in an interview which will take approximately 45 minutes for the PLHIV's and 15 minutes for the health personnel to complete.

Description of measures to minimize risks

Participants may decline to answer any question or discuss any topic that they may not wish to discuss. In addition, all persons involved in the research will be trained on how to remind participants of their ability to decline in participating at any point. The persons conducting the interviews will be trained in moderating and interviewing skills when dealing with such topics

Confidentiality

Data Security

All study materials (structured questionnaire, standardized checklists, informs consent forms) will be sorted in locked file cabinets in the office of the School of Public

Health. Data that is will be in electronic files will be made accessible only to the research team.

Plans for Record Keeping

Study materials (structured questionnaire, standardized checklists, informs consent forms) will not be labelled and unique identification codes will be given to each study participants.

Person Responsible and Telephone Number

The person responsible for data storage will be Mariama Bogobire Yakubu Investigator, of the School of Public Health, University of Ghana Legon Tel: 0243389345

Where Data will be stored

During data collection, all materials related to the study will be stored in locked cabinet in the Investigator's office.

Who Will Have Access to Data

Only members of the research team (Investigator and assistants) will have access to the data

Compensation

Eligible persons who consent to participate in this study will not be given any monetary or non-monetary compensation however may be refreshed

Voluntary Participation and right to leave the Research

Potential study participants will be told that participating in the study is entirely voluntary, and that declining to enter the study, declining to answer a question, or terminating the interview will have no negative consequence.

Contacts for Additional Information

Please call the person responsible for this study in your in your community, Mariama Bogobire Yakubu at 0243389345, if you have any question about the student you can also contact Ms Abena Kwaa Addai-Donkoh (GHSERC) at 0244712919

VOLUNTEER AGREEMENT

The above document describing the benefits, risk and procedures for the research title (Assessment of Nutrition Support Services at Selected ART sites in Ghana) has been read and explained to me. I have been given an opportunity to answer any question about the research to my satisfaction. I consent voluntarily to participate as a subject in this study and understand that I have the right to withdraw from the study at any point in time without it in any way affecting my further medical care or Carrier. I agree to participate as a volunteer by signing or Thumb printing

_____ _____

Date Signature or mark of participation

If volunteers cannot read the form themselves, a witness must sign here:

I was present while the benefit, risk and procedures were read to the volunteer. All questions were answered and the volunteer has agreed to take part in the research.

_____ _____

Date Name and signature of witness

I certify that the nature and purpose, the potential benefits and possible risk associated with participating in this research have been explained to the above individual.

_____ _____

Date Name and Signature of Person who Obtained Consent

Appendix 2

DATA COLLECTION TOOLS

TOPIC: ASSESSMENT OF NUTRITION SUPPORT SERVICES FOR PLHIV IN SELECTED ART SITES IN GHANA

UNIVERSITY OF GHANA

SCHOOL OF PUBLIC HEALTH

MPH

NUTRITION COUNSELLING QUALITY CHECKLIST

Researcher:

I am a MPH student from the School of Public Health of University of Ghana. I am conducting a research on the …….. This is in partial fulfilment of the requirements for the award of MPH and would like you to be part of my research subjects. The research is purely for academic exercise and your opinion would be treated as confidential as possible.

Site:
Observation date
Supervisor's name
Counsellor's name
Instructions 1. Check the boxes for "yes" or "no" according to your observation for each of the question. 2. For each "yes", record the allotted number of points in the last column 3. Sum all of the points for every question to determine the Total Session Score

QUESTION	YES	NO	POINTS SCORED IF YES	POINTS SCORED
1. Did counsellor ask how the client is feeling or what his/her nutritional or heal concerns are at this time?			5	
2. Did counsellor weigh the client and record the weight or record the clients weight elsewhere during today's visit			5	
3. Did counsellor ask about nutrition related symptoms experienced within the past two weeks			5	
4. Did counsellor ask about clients appetite			5	
5. Did counsellor ask about clients functional status			5	
6. Did counsellor ask about food and liquids consumed during the day before the appointment			5	
7. Did counsellor provide information and guidance on topics that correspond to the assessment			15	
8. Did counsellor set nutrition goals with the client			15	
9. Did the counsellor and client discuss options to accomplish the nutrition goals, developing a plan if necessary?			10	
10. Did counsellor and client discuss challenges the client might face in implementing the plan or achieving nutrition goals?			5	

QUESTION	YES	NO	POINTS SCORED IF YES	POINTS SCORED
11. Did the counsellor schedule a follow-up visit with the client?			5	
12. Did the counsellor greet the client?			5	
13. Did the counsellor communicate in language based on the clients knowledge, cultural values and beliefs?			5	
14. Did the counsellor give the client the opportunity to ask questions?			5	
15. Did the counsellor respond to the clients questions			5	
			100	

CHECKLIST FOR FACILITY LEVEL ASSESSMENT

UNIQUE ID:…….

Separate room / area for individual counselling	Yes ----------1 No ----------2	
Does the room or area provide audio and visual privacy	Yes ----------1 No ----------2	
Anthropometric measurements of clients taken and recorded	Yes ----------1 No ----------2	
Dietary assessment of client taken	Yes ----------1 No ----------2	
Counselling done individually or in a group		
Food assistance given to client(ask managers of ART sites)	Yes ----------1 No ----------2	
Therapeutic or supplementary food product provided as part of treatment(ask managers of ART site)	Yes ----------1 No ----------2	
Availability of counselling material on nutrition and HIV (ask ART site managers)	Yes ----------1 No ----------2	
The site has copies of algorithms/guidelines for managing malnutrition in HIV- and/or TB-affected adults.	Yes ----------1 No ----------2	
If yes, are they used during counselling	Yes ----------1 No ----------2	
The site has copies of algorithms/guidelines for managing malnutrition in HIV- and/or TB-infected children.	Yes ----------1 No ----------2	
If yes, are they used during counselling	Yes ----------1 No ----------2	
The site has at least one set of nutrition and HIV counselling cards (if these exist in the country).	Yes ----------1 No ----------2	

Availability of written protocol for nutrition assessment, counselling and referral for services	Yes ----------1 No ----------2	
The site has data entry forms and a compilation system that includes nutrition data.	Yes ----------1 No ----------2	
The site has a chart with BMI cut-offs for adults and BMI-for-age in adolescents	Yes ----------1 No ----------2	
Are behaviour change communication materials (eg posters) or protocols on nutrition and HIV displayed at waiting areas counselling area education area ART site Pharmacy	 Yes-------1 No------2 Yes-------1 No------2 Yes-------1 No------2 Yes-------1 No------2 Yes-------1 No------2	
Availability of food demonstration equipment(storage, cooking, sprouting)		
If yes, are they used? (ask ART site managers)	Yes ----------1 No ----------2	
Availability of ORS demonstration equipment(ask ART site managers)	Yes ----------1 No ----------2	
If yes, are they used?(ask ART site managers)	Yes ----------1 No ----------2	
Availability of hand- washing equipment (ask ART site managers)	Yes ----------1 No ----------2	
If yes, are they used?	Yes ----------1 No ----------2	

Availability of Functional adult weighing scale that measures in kg to the nearest 0.1kg	Yes---------1 No---------2	
Functional children' weighing scale that measures in kg to the nearest 0.1kg	Yes---------1 No---------2	
Height or length board that measures in cm to the nearest cm	Yes----------1 No--------2	
The site has MUAC tapes that measure to the nearest cm for pregnant and post-partum women and other adults whose height cannot be measured.	Yes----------1 No---------2	
The site has MUAC tapes for children 6–59 months old.	Yes ----------1 No--------2	

Questionnaire for the Study of HIV-Positive Clients

Researcher:

I am a MPH student from the School of Public Health of University of Ghana. I am conducting a research on the nutrition assessment counselling and support for PLHIV. This is in partial fulfilment of the requirements for the award of MPH and would like you to be part of my research subjects. The research is purely for academic exercise and your opinion would be treated as confidential as possible.

CLIENT LEVEL ASSESSMENT INDICATORS

Respondent ID _____	Interview Date _____/_____/____	
Place of Residence		
Questions	Answers	
A. Background Characteristics		
1. Age	_____ years	
2. Sex	Male ------1 Female ------2	
3. Marital status	Married(living together with spouse)------1 Married(not living with spouse)----------2 Divorced----------3 Not married----------4 Widowed----------5 Separated----------6	
4. Educational Status	Nil..... Primary----------2 JHS/Middle school ----------3 SHS----------4 Post-Sec.....5 Tertiary ----------6 Others(specify).....7	
B. Household Characteristics, Occupation and Income		
5. Are you currently employed	Yes ----------1 No ----------2	
6. What is your current main occupation	None ----------1 Trader ----------2 Skilled artisan----------3 Unskilled labour----------4 Salaried worker----------5	

	Others(specify)----------6	
7. In the last month how much income did you earn from your main occupation	_____ Ghana cedis	
8. Are there other occupation(s) that you engage in for additional income?	Yes ----------1 No ----------2	
9. If yes , indicate all applicable	None ----------1 Trader ----------2 Skilled artisan----------3 Unskilled labour----------4 Salaried worker----------5 Others(specify)----------6	
10. In the last month how much income did you earn from your additional occupation	_____Ghana cedis	
11. In the last month have you or your family received non monetary gifts to support your daily needs (eg food medication etc) from any of the following sources? Family members Friends Government /NGO Cooperatives Church	---------- Yes No---------- ----------Yes No---------- ----------Yes No---------- ----------Yes No---------- ----------Yes No---------- I don't know----------	
12. In the last month have you or your family received money from any the following sources to support your daily needs Family members Friends Government /NGO Cooperatives Church	If yes indicate amount in Ghana cedis _____ _____ _____ _____ _____	
C. Health history and Clinical Stage		
13 How long have you been diagnosed with HIV?	Less than 1 year----------1 1-3 years----------2 4-6 years----------3 More 6 years----------4	
14 How long have you been on ART?	Less than 1 year----------1 1-3 years----------2 4-6 years----------3 More 6 years----------4	

Questions	Answers	
15 Current /latest's CD4+ count	_____	

D. Client participation in Nutrition Assessment and Evaluation of Nutrition Service

Questions	Answers	
16 When was the last time you had your weight measured	A month ago----------1 Two months ago ----------2 Three month ago----------3 More than three months--4	
17 Have you ever received counselling on how to eat in relation to your HIV status?	Yes----------1 No----------2 IDONT REMEMBER----------3	
18 If yes, when was the last time you received counselling on how to eat in relation to your HIV status?	A month ago----------1 Two months ago ----------2 Three month ago----------3 More than three months--4	
19 Has any of your family members received counselling on how to eat in relation to your HIV status in the last 12 months	Yes ----------1 No ----------2 IDONT REMEMBER----------3	
20 Have you ever been taught how to Prepare ORS	Yes ----------1 No ----------2 I don't remember----3	

21 Have you ever been taught how to wash your hands properly?	Yes----------1 No----------2 I don't remember-----3	
22 At what times do you wash your hands properly (client should at least name three critical times to wash hands)?(naming 3 or more corrects-very good, 2 corrects-good, 1 or less-fair)	Before preparing meals----------1 Before eating----------2 When taking medication----------3 After visiting the toilet----------4	
Clients Knowledge on nutrition		
Questions	Responses	
23 What is recommended for safe food handling?(should be able to name three recommended ways) (naming 3 or more corrects-very good, 2 corrects-good, 1 or less-fair)	Eat food that is warm----------1 Use clean cups, plates and spoons------2 Reheat food before eating----------3 Store perishable food appropriately-----4	
24 What are the recommended times to have your meals and drugs?		
25 Do you know why you will have to adhere to meal- drug timetable?		
26 What are the basic ways you can increase your energy (client should be able to name the three recommended ways of increasing the energy density of food)(naming 3 or more corrects-very good, 2 corrects-good, 1 or less-fair)	Increasing frequency (including snacks) Using oils sugar or eggs in meals Increasing size of portions of meals I don't know	
27 How many times are you suppose to eat in a day?	1times----------1 2times----------2 3times----------3 More than 3 times----------4 I don't know----------5	
28 What are some of the ways you can modify your dietary patterns with regards to symptoms	----------	
29 If yes, how many times do you eat snacks in a day	Once----------1 More than once-----2	
30 What are the advantages of eating a nutritionally adequate diet?(naming 4 or more corrects-very good, 2-3 corrects-good,1 or less-fair)	Boost immunity system----------1 Give physical strength----------2 Prevent disease----------3 Reduce risk of weight loss----------4 Make ART more effective----------5	

	Reduce risk of micronutrient deficiency---6	
31 What is the importance of adding food containing vegetable to your meals on daily basis as far as improvement of your health status is concern?		
32 What is the importance of consuming fruits daily as far as improvement of your health status is concern?		
What is the importance of including any of these in the meals you have? Oils/fat Meat/fish/eggs Milk/ legumes/nuts		
33 How has the nutrition counselling you received affected your appetite since your visit		

HEALTH PERSONNEL LEVEL ASSESSMENT INDICATORS

Respondent ID _____	Interview Date _____/_____/____	
Place of duty		
Questions	Answers	
1 Background Characteristics		
2 Age	_____ years	
3 Sex	Male ------1 Female ------2	

Background Training		
4 Educational Status	Nil……1 Primary----------2 JHS/Middle school ----------3 SHS----------4 Post-Sec……..5 Tertiary ----------6 Others(specify)……7	
5 Profession	Doctor----------1 Dietician----------2 Nurse----------3 Nutritionist----------5 Pharmacist----------6 (Others, specify)----------7	
6What are you duties here?	----------	
7 Have you ever had any training in counselling	Yes----------1 No----------2	
8 If yes, which of the ff counselling training did you have?	Basic/general counselling----------1 Dietary management in HIV----------2 Others (specify)----------3	
9 How many of such trainings have you received?	Once----------1 Twice----------2 More than twice----------3 Cannot remember----------4	
10 Have you ever received MOH approved training on nutrition and HIV?	Yes----------1 No----------2	
11 What was the duration of the training?	----------	
12 When was the last time you had any training in MOH approved nutrition and HIV course	----------	

13 what are the main food groups? (naming 6 or more –very good, 4-5-good less than 3 fair)	Legumes----------1 Fats and oil----------2 Cereals and grains---------3 Tubers ----------4 Vegetables----------5 Fruits----------6	
14 What are the advantages of eating a nutritionally balanced diet (naming 4 or more correct-very good, 2-3 correct-good,1or less fair)	Boost immune system----------1 Give physical strength----------2 Prevent disease----------3 Reduce risk of weight loss----------4 Make ART more effective----------5 Reduce risk of micronutrient deficiency-6	
15Which foods are rich in vitamins and minerals? diet (naming 3 or more correct-very good, 2 correct-good,1or less fair)	Legumes----------1 Green vegetables----------2 Eggs, fish, meat chicken----------3 Fruits----------4	
16 How does HIV affect dietary practices? (should be able to name at least 3 correct)	Increased food energy/nutrient requirement----------1 Some medication increases appetite------2 Some medication can increase appetite—3 Disease can limit access to food----------4	
17 What are the advantages of eating a nutritionally adequate diet?(naming 4 or more correct-very good, 2-3 correct-good,1 or less-fair)	Boost immunity system----------1 Give physical strength----------2 Prevent disease----------3 Reduce risk of weight loss----------4 Make ART more effective----------5 Reduce risk of micronutrient deficiency---6	

Appendix 3

SCORES OF OBSERVED NUTRITION COUNSELLING

Site: Princess Marie Louise children hospital
Observation date 18/06/2013

Supervisor's name Mariama Bogobire Yakubu
Counsellor's name Agnes Serwaa
Instructions 1. Check the boxes for "yes" or "no" according to your observation for each of the question. 2. For each "yes", record the allotted number of points in the last column 3. Sum all of the points for every question to determine the Total Session Score

QUESTION	YES	NO	POINTS SCORED IF YES	POINTS SCORED
1. Did counsellor ask how the client is feeling or what his/her nutritional or health concerns are at this time?	5		5	
2. Did counsellor weigh the client and record the weight or record the clients weight elsewhere during today's visit	5		5	
3. Did counsellor ask about nutrition related symptoms experienced within the past two weeks			5	
4. Did counsellor ask about clients appetite	5		5	
5. Did counsellor ask about clients functional status			5	
6. Did counsellor ask about food and liquids consumed during the day before the appointment	5		5	
7. Did counsellor provide information and guidance on topics that correspond to the assessment	15		15	
8. Did counsellor set nutrition	15		15	

goals with the client				
9. Did the counsellor and client discuss options to accomplish the nutrition goals, developing a plan if necessary?	10		10	
10. Did counsellor and client discuss challenges the client might face in implementing the plan or achieving nutrition goals?	5		5	
11. Did the counsellor schedule a follow-up visit with the client?	5		5	
12. Did the counsellor greet the client?	5		5	
13. Did the counsellor communicate in language based on the clients knowledge, cultural values and beliefs?	5		5	
14. Did the counsellor give the client the opportunity to ask questions?	5		5	
15. Did the counsellor respond to the clients questions	5		5	
	90		100	

Site: Saint Francis Xavier Hospital

Observation date 05/06 /2013

Supervisor's name Mariama Bogobire Yakubu

Counsellor's name Victoria Amonoo

Instructions

1 Check the boxes for "yes" or "no" according to your observation for each of the question.

2 For each "yes", record the allotted number of points in the last column

3 Sum all of the points for every question to determine the Total Session Score

QUESTION	YES	NO	POINTS SCORED IF YES	POINTS SCORED
1. 1 Did counsellor ask how the client is feeling or what his/her nutritional or health concerns are at this time?	5		5	
2. 2 Did counsellor weigh the client and record the weight or record the clients weight elsewhere during today's visit	5		5	
3. 3 Did counsellor ask about nutrition related symptoms experienced within the past two weeks	5		5	
4. Did counsellor ask about clients appetite			5	
5. Did counsellor ask about clients functional status	5		5	
6. Did counsellor ask about food and liquids consumed during the day before the appointment	5		5	

QUESTION	YES	NO	POINTS SCORED IF YES	POINTS SCORED
7. Did counsellor provide information and guidance on topics that correspond to the assessment	15		15	
8. Did counsellor set nutrition goals with the client	15		15	
9. Did the counsellor and client discuss options to accomplish the nutrition goals, developing a	10		10	

plan if necessary?				
10. Did counsellor and client discuss challenges the client might face in implementing the plan or achieving nutrition goals?	5		5	
11. Did the counsellor schedule a follow-up visit with the client?			5	
12. Did the counsellor greet the client?	5		5	
13. Did the counsellor communicate in language based on the clients knowledge, cultural values and beliefs?	5		5	
14. Did the counsellor give the client the opportunity to ask questions?	5		5	
15. Did the counsellor respond to the clients questions	5		5	
	90		100	

Site: Saint Francis Xavier Hospital
Observation date 05/06/2003
Supervisor's name Mariama Bogobire Yakubu
Counsellor's name Victoria Amonoo
Instructions 1. Check the boxes for "yes" or "no" according to your observation for each of the question. 2. For each "yes", record the allotted number of points in the last column 3. Sum all of the points for every question to determine the Total Session Score

QUESTION	YES	NO	POINTS SCORED IF YES	POINTS SCORED
1. Did counsellor ask how the client is feeling or what his/her nutritional or health concerns are at this time?	5		5	
2. Did counsellor weigh the client and record the weight or record the clients weight elsewhere during today's visit	5		5	
3. Did counsellor ask about nutrition related symptoms experienced within the past two weeks			5	
4. Did counsellor ask about clients appetite			5	
5. Did counsellor ask about clients functional status	5		5	
6. Did counsellor ask about food and liquids consumed during the day before the appointment	5		5	

QUESTION	YES	NO	POINTS SCORED IF YES	POINTS SCORED
7. Did counsellor provide information and guidance on topics that correspond to the assessment	15		15	
8. Did counsellor set nutrition goals with the client	15		15	

9. Did the counsellor and client discuss options to accomplish the nutrition goals, developing a plan if necessary?			10	
10. Did counsellor and client discuss challenges the client might face in implementing the plan or achieving nutrition goals?	5		5	
11. Did the counsellor schedule a follow-up visit with the client?			5	
12. Did the counsellor greet the client?	5		5	
13. Did the counsellor communicate in language based on the clients knowledge, cultural values and beliefs?	5		5	
14. Did the counsellor give the client the opportunity to ask questions?	5		5	
15. Did the counsellor respond to the clients questions	5		5	
	80		100	

Site: Ho regional Hospital
Observation date 06/05/2013
Supervisor's name Mariama Bogobire Yakubu
Counsellor's name Tauffik Mohammed Haruna

Instructions

1. Check the boxes for "yes" or "no" according to your observation for each of the question.
2. For each "yes", record the allotted number of points in the last column
3. Sum all of the points for every question to determine the Total Session Score

QUESTION	YES	NO	POINTS SCORED IF YES	POINTS SCORED
1. Did counsellor ask how the client is feeling or what his/her nutritional or health concerns are at this time?	5		5	
2. Did counsellor weigh the client and record the weight or record the clients weight elsewhere during today's visit	5		5	
3. Did counsellor ask about nutrition related symptoms experienced within the past two weeks	5		5	
4. Did counsellor ask about clients appetite	5		5	
5. Did counsellor ask about clients functional status	5		5	
6. Did counsellor ask about food and liquids consumed during the day before the appointment	5		5	

QUESTION	YES	NO	POINTS SCORED IF YES	POINTS SCORED
7. Did counsellor provide information and guidance on topics that correspond to the	15		15	

assessment				
8. Did counsellor set nutrition goals with the client	15		15	
9. Did the counsellor and client discuss options to accomplish the nutrition goals, developing a plan if necessary?	10		10	
10. Did counsellor and client discuss challenges the client might face in implementing the plan or achieving nutrition goals?	5		5	
11. Did the counsellor schedule a follow-up visit with the client?	5		5	
12. Did the counsellor greet the client?	5		5	
13. Did the counsellor communicate in language based on the clients knowledge, cultural values and beliefs?	5		5	
14. Did the counsellor give the client the opportunity to ask questions?			5	
15. Did the counsellor respond to the clients questions	5		5	
	95		100	

Site: Ho regional hospital
Observation date 06/06/2013
Supervisor's name Mariama

Counsellor's name Tauffik Mohammed Haruna
Instructions 1. Check the boxes for "yes" or "no" according to your observation for each of the question. 2. For each "yes", record the allotted number of points in the last column 3. Sum all of the points for every question to determine the Total Session Score

QUESTION	YES	NO	POINTS SCORED IF YES	POINTS SCORED
1. Did counsellor ask how the client is feeling or what his/her nutritional or health concerns are at this time?			5	
2. Did counsellor weigh the client and record the weight or record the clients weight elsewhere during today's visit	5		5	
3. Did counsellor ask about nutrition related symptoms experienced within the past two weeks	5		5	
4. Did counsellor ask about clients appetite			5	
5. Did counsellor ask about clients functional status	5		5	
6. Did counsellor ask about food and liquids consumed during the day before the appointment	5		5	

QUESTION	YES	NO	POINTS SCORED IF YES	POINTS SCORED
7. Did counsellor provide information and guidance on	15		15	

topics that correspond to the assessment				
8. Did counsellor set nutrition goals with the client	15		15	
9. Did the counsellor and client discuss options to accomplish the nutrition goals, developing a plan if necessary?			10	
10. Did counsellor and client discuss challenges the client might face in implementing the plan or achieving nutrition goals?	5		5	
11. Did the counsellor schedule a follow-up visit with the client?	5		5	
12. Did the counsellor greet the client?			5	
13. Did the counsellor communicate in language based on the clients knowledge, cultural values and beliefs?	5		5	
14. Did the counsellor give the client the opportunity to ask questions?	5		5	
15. Did the counsellor respond to the clients questions	5		5	
	75		100	

Site: Effie Nkwanta regional Hospital
Observation date 30/05/2013
Supervisor's name Mariama Bogobire Yakubu

Counsellor's name Cynthia Darku
Instructions 1. Check the boxes for "yes" or "no" according to your observation for each of the question. 2. For each "yes", record the allotted number of points in the last column 3. Sum all of the points for every question to determine the Total Session Score

QUESTION	YES	NO	POINTS SCORED IF YES	POINTS SCORED
1. Did counsellor ask how the client is feeling or what his/her nutritional or health concerns are at this time?	5		5	
2. Did counsellor weigh the client and record the weight or record the clients weight elsewhere during today's visit			5	
3. Did counsellor ask about nutrition related symptoms experienced within the past two weeks			5	
4. Did counsellor ask about clients appetite			5	
5. Did counsellor ask about clients functional status	5		5	
6. Did counsellor ask about food and liquids consumed during the day before the appointment			5	

QUESTION		NO	POINTS SCORED IF YES	POINTS SCORED
7. Did counsellor provide	15		15	

information and guidance on topics that correspond to the assessment				
8. Did counsellor set nutrition goals with the client	15		15	
9. Did the counsellor and client discuss options to accomplish the nutrition goals, developing a plan if necessary?	5		10	
10. Did counsellor and client discuss challenges the client might face in implementing the plan or achieving nutrition goals?			5	
11. Did the counsellor schedule a follow-up visit with the client?	5		5	
12. Did the counsellor greet the client?			5	
13. Did the counsellor communicate in language based on the clients knowledge, cultural values and beliefs?	5		5	
14. Did the counsellor give the client the opportunity to ask questions?	5		5	
15. Did the counsellor respond to the clients questions	5		5	
	70		100	

Site: Effie Nkwanta regional Hospital
Observation date 30/05/2013
Supervisor's name Mariama Bogobire Yakubu

Counsellor's name Eugenia Aboagyiwaa Opoku
Instructions 1. Check the boxes for "yes" or "no" according to your observation for each of the question. 2. For each "yes", record the allotted number of points in the last column 3. Sum all of the points for every question to determine the Total Session Score

QUESTION	YES	NO	POINTS SCORED IF YES	POINTS SCORED
1. Did counsellor ask how the client is feeling or what his/her nutritional or health concerns are at this time?	5		5	
2. Did counsellor weigh the client and record the weight or record the clients weight elsewhere during today's visit	5		5	
3. Did counsellor ask about nutrition related symptoms experienced within the past two weeks	5		5	
4. Did counsellor ask about clients appetite	5		5	
5. Did counsellor ask about clients functional status			5	
6. Did counsellor ask about food and liquids consumed during the day before the appointment	5		5	

QUESTION	5	NO	POINTS SCORED IF YES	POINTS SCORED
7. Did counsellor provide	15		15	

information and guidance on topics that correspond to the assessment				
8. Did counsellor set nutrition goals with the client	15		15	
9. Did the counsellor and client discuss options to accomplish the nutrition goals, developing a plan if necessary?	10		10	
10. Did counsellor and client discuss challenges the client might face in implementing the plan or achieving nutrition goals?			5	
11. Did the counsellor schedule a follow-up visit with the client?	5		5	
12. Did the counsellor greet the client?			5	
13. Did the counsellor communicate in language based on the clients knowledge, cultural values and beliefs?	5		5	
14. Did the counsellor give the client the opportunity to ask questions?			5	
15. Did the counsellor respond to the clients questions	5		5	
	80		100	