

**"NUTRITION KNOWLEDGE AND
PRACTICES OF TRAINED HOME
BASED CARE VOLUNTEERS FOR
PEOPLE LIVING WITH HIV/AIDS IN
KAKAMEGA DISTRICT KENYA."**

BY

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**A DISSERTATION PRESENTED TO THE
DEPARTMENT OF FOOD SCIENCE NUTRITION
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NUTRITION.**

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Declaration

I, hereby, declare that this dissertation is my original work and has not been presented for a degree in any other university.



Mildred Shilwatso Irungu

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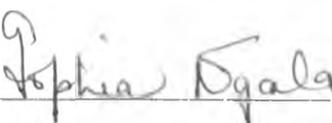
The dissertation has been submitted for examination with our approval as university of Nairobi supervisors.



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Date

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Dedication

This work is dedicated to three beloved people, Kenan Enoch Irungu, Lionel Angote Sinzore and Enoch Irungu Malenya, for their prayers, patience and encouragement throughout the study period.

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This research could not have been accomplished by me alone. It was made possible with the support and assistance of many individuals and institutions to whom I am greatly indebted .

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DEFINITIONS

Affected

Persons related to PLWHA including their families, friends, and advocates whose lives are directly influenced by its psychological, economical and sociological ramifications.

AIDS

Acquired Immunodeficiency Syndrome, is the end stage of disease state following HIV infection. It is characterised by symptoms that take advantage of the damaged immune system such as severe weight loss, chronic diarrhoea, fever, persistent cough .

Asymptomatic Infection

This is a term used to describe an HIV infected individual who has not developed clinical signs of symptoms.

Balanced Diet

A combination of the major food groups namely carbohydrates, fats, proteins, vitamins and minerals. One should be able to have all these in their diet with nutrient amounts required by the body.

Cases

These are people who have tested positive for HIV virus.

CD4 cells

Type of cells involved in protecting against viral, fungal, and protozoal infections. They orchestrate the immune response by signaling other cells in the immune system.

Exclusive breastfeeding

This refers to breastfeeding without supplementary feeds such as water, other liquids or semisolid foods. In general exclusive breastfeeding is recommended for the first six months of life. When replacement feeding is acceptable, feasible, affordable, sustainable and safe, avoidance of all breastfeeding by HIV-positive mothers is recommended.

HIV

Human Immunodeficiency Virus is a retrovirus that targets cells of the body with CD4 receptors such as T helper cells, Langerhans Cells, Macrophages and gradually causes immuno-suppression.

Home based care.

This includes the care given to the People Living with HIV/AIDS and affected in their homes and care extended from the hospitals or health facilities to their homes through family participation and community involvement.

Nutritional Counseling

Refers to counseling conducted in an interactive manner responsive to individual client needs. It focuses on providing accurate, consistent therapeutic information aimed at promoting informed decision making on issues relating to nutrition.

Nutritional Care and Support

This includes all that is done to prevent nutritional depletion among people who are HIV positive and provision of palliative nutrition care for people with AIDS. It aims at:

- Improving and developing better eating habits and diets among patients
- Building or replenishing body stores of nutrients
- Preventing or stabilizing weight loss.
- Preserving muscle mass.
- Preparing for AIDS related symptoms that affect food consumption.

Nutrition Knowledge

Nutrition knowledge refers to verbalised or demonstrated ability to reproduce from memory facts and principles related to nutrition care and support for HIV/AIDS infected people by the trained volunteers

Opportunistic Diseases/ Infections.

These are infections caused by organisms that do not usually cause disease in a healthy person, but able to cause severe and potentially life threatening illness among immunodeficient individuals such as patients with AIDS, cancers or on treatment with

immunosuppressive drugs such as steroids or chemotherapy. HIV infected individuals are also vulnerable to infection with common pathogens that cause disease in the immune competent host.

People Living With HIV/AIDS (PLWHA)

A general term for people infected with HIV whether or not they are showing any signs or symptoms of infection.

Post Test clubs

These are clubs or groups formed by people who know their HIV status. They act as support groups where members meet and encourage each other to live positively.

Practice of Volunteers

This refers to the services offered by volunteers to PLWHA, the number of clients they have, and the frequency of their visits and methods used to decide the visits.

Wasted PLWHA

This refers to People living with HIV/AIDS who get an involuntary weight loss of 10% of baseline body weight plus either chronic diarrhea or chronic weakness and documented fever in the absence of a concurrent illness or condition other than HIV infection.

Not wasted PLWHA

This refers to people living with HIV/AIDS who do not have weight loss.

ACRONYMS AND ABBREVIATION

ACC/SCN	Administrative Committee Coordination Sub-Committee on Nutrition
AIDS	Acquired Immunodeficiency Syndrome.
ARV	Antiretroviral
CBO	Community Based Organization
CACC	Constituency AIDS Control Committee
CDC	Center for Disease Control
DACC	District AIDS Control Committee
DAO	District Agricultural Officer.
FANTA	Food and Nutrition Technical Assistance Project.
FAO	Food and Agriculture Organization.
GOK	Government of Kenya
HBC	Home Based Care
HIV	Human Immunodeficiency Virus
MOH	Ministry of Health
NACC	National AIDS Control Council
NGO	Non-Governmental Organisation
UN	United Nations.
UNAIDS	Joint United Nations Programme of HIV/AIDS
WHO	World Health Organisation

Abstract

Home-based care includes the care given to the sick and affected in their homes and care extended from the hospitals or health facilities to their homes through family participation and community involvement. One of the components of home-based care is nutritional care and support. In Kakamega district, home-based care volunteers have been trained from 2000 to date. The main trainers were Pathfinder trains for three weeks, Grass Root Organization Operating in Sisterhood trains for two days and Joy three days. This cross sectional study was conducted to assess the nutritional knowledge and practices of the trained volunteers in Kakamega district.

The study population comprised of 200 trained volunteers. A questionnaire, focus group guide and observations were used. In the study, 146 volunteers were interviewed and 27 people living with HIV/AIDS participated in focus group discussions. Observations were made on the condition of people living with HIV/AIDS, time spent on nutrition education and content in three refresher trainings. Supplies given to volunteers were observed and recorded.

Various attributes of knowledge were sought. These included knowledge on spread, symptoms of AIDS that affect the nutrition of people living with HIV/AIDS and nutrition knowledge needed to take care of the symptoms.

Data were analysed using SPSS computer software. The percentage score was put into quartiles and used as cut off points to categorise the knowledge of the volunteers into adequate (upper quartile), moderate (third quartiles) and inadequate (second and lower quartile). Their practice was determined by finding out how many clients they saw per month, how they decided the visits, the interval they took before seeing clients and the services they offered. The volunteers ranked challenges encountered in the course of their work. Coping strategies used by the volunteers in their work were documented. The associations among the variables was determined.

The results from the study showed that only 3.4% of the volunteers had adequate nutrition knowledge. The education level of the volunteers was positively related to their nutrition knowledge. The volunteers who had been trained for three weeks had better nutrition knowledge than those trained for two days and one week. More than half (59%) of volunteers were committed to their work, they visited clients weekly. The services offered by most volunteers were environmental and personal hygiene, training of caregivers in the homes, nutrition education and counseling.

The three most important challenges to volunteers in their work were high expectations from clients and the community, poverty and uncooperative patients. Among the various coping strategies that were available to volunteers, giving what they had, involving the community and counseling families and PLWHA were the ones most applied.

In conclusion, the hypothesis that most home-based care volunteers have adequate nutrition knowledge was not supported by the results of the study. The second hypothesis that nutrition knowledge does not depend on training time or the trainer was not supported by the results. The results also showed that nutrition knowledge was associated with the training time and trainer. Those trained by Pathfinder (3 weeks) and Joy (3 days) had better knowledge than those trained by GROOTS (2 days). Volunteers trained for three weeks had better knowledge than those trained for two days. The last hypothesis that nutrition knowledge does not affect the practice of volunteers was supported by the results of the study. There was no association in services given, number seen and interval before seeing a client between those with adequate knowledge and those with inadequate knowledge.

It is recommended that for the volunteers to have adequate nutrition knowledge the agencies who train volunteers ought to consider the education level of volunteers, give adequate content and time to nutrition during trainings and carry out refresher trainings. The practice would improve if the volunteers get supportive supervision and some of the challenges like lack of supplies attended to.

CHAPTER 1

INTRODUCTION

1.1 Background

The immune impairment as a result of HIV/AIDS can contribute to malnutrition.

Malnutrition leads to immune impairment, worsens the effect of HIV; and contributes to a more rapid progression of disease. Thus malnutrition both contributes to and is a result of HIV disease progression.

There are several approaches to designing and implementing appropriate nutrition relevant actions aimed at preventing and/or mitigating HIV/AIDS impacts that are implemented at various levels like household and health facility. At first distinction needs to be made with regard to the objective of the action. For people living with HIV/AIDS, nutritional care and support is initially important in preventing or forestalling nutritional depletion. Relevant specific objectives might include to improve quality and quantity of the diet, to build or replenish body stores of micronutrients, to prevent or stabilize weight loss, to preserve (and gain) muscle mass, to prevent diarrhoea and other digestive discomforts associated with mal-absorption, to speed recuperation from HIV related infections and to prepare for and manage AIDS- related symptoms that affect food consumption and dietary intake (Gillespie et al, 2001).

Home based care (HBC) includes the care given to the sick and the affected in their own homes. This care can be extended from the health facility to their homes through family participation and community involvement. It is a collaborative effort between health facilities, the family and the community. HBC has four components; clinical

management, nursing care (into which nutrition falls), counseling and social support.

Several factors have led to the promotion of home based care. The inability of both patients and relatives to pay hospital bills and an overstretched national healthcare system have provided the drive for alternative methods of HIV patients care, e.g home based care (Murrah and Kiarie, 2001).

The drugs used in the management of AIDS are largely unavailable and weakened immune systems cannot tolerate strong medicines nor ward off opportunistic infections.

Nutrition is now acknowledged as one of the primary ways in which individuals and community health can be maintained, livelihoods improved and disease ameliorated and prevented (Onyango, 2003).

1.2 Problem Statement

Home-based care was implemented to improve the care given to people living with HIV/AIDS (PLWHA). One of the components of HBC is nutrition care and support. Training HBC volunteers in nutrition would build their capacity in order to help PLWHA slow the progression of HIV to AIDS and improve their quality of life.

Nutrition for PLWHA is a vital and often neglected component of HBC (WHO/ FAO, 2002). In order for the HBC volunteers to offer nutritional care and support, they need to have adequate and current information on HIV and nutrition. to pay more attention to nutrition issues as many programmers do not factor-in nutrition adequately. Just as there are now gender assessments, there should also be nutrition impact assessments. The nutrition community needs to speak up and work with the HIV/AIDS community (People

living with HIV/AIDS and others directly influenced by the HIV infection), to ensure that nutrition is fully taken into account (Marum, 2001).

Tools for assessment of capacity need to be developed and employed. Capacity as a constraint to effective intervention is often overlooked with disastrous consequences and the fact that HIV/AIDS directly undermines this capacity makes it even more important to assess what remains. The evaluation of HIV/AIDS mitigation through food, agriculture and nutrition intervention is an area in which immediate work must begin. The work must be action oriented for advocacy and ethical reasons but it must conform to high scientific standards in a difficult but not impossible challenge as action research outside of HIV/AIDS and indeed HIV/AIDS prevention work has shown (Gillespie et al, 2001).

Assessment of the capacity of the trained volunteers in nutrition education provides a clear picture to trainers and other stakeholders what the trained volunteers know. As seen above the assessment of capacity should be for action that is for improving other trainings that will be offered to volunteers and training related aspects. This study is one of such an assessment of capacity.

1.3 Justification

HBC is a current option put in place for PLWHA. Nutrition is one of its components. The link between nutrition and HIV/AIDS is well documented. HIV/AIDS and nutrition often operate in tandem. Poor nutrition increases the risk and progression of disease, in turn, the disease exacerbates malnutrition.

The HIV/AIDS epidemic is not just a health issue but is reversing hard earned development gains. A community driven multi-sectoral approach must be supported to address food and nutritional needs of all vulnerable populations. Nutrition is a core component of essential HIV/AIDS care package promoted by United Nations Programme of AIDS (UNAIDS). Elaborating and fully implementing nutrition care and counseling as part of essential HIV/AIDS care package is essential. (ACC/SCN, 2001)

HBC began to be implemented by the Ministry of Health in 2003. It is important to assess the nutrition knowledge, attitude and practice of care givers to ensure that the PLWHA are getting good nutrition care and support from the care givers.

1.4 Aim

The aim of the research is to improve the nutritional status of PLWHA through improving their nutritional care and support

1.5 Purpose of Study

The purpose of the study is to assess the nutrition knowledge and practice of trained home based care volunteers, identify gaps in knowledge, the trainings and other aspects that affect the trained volunteers nutrition knowledge.

1.6 Objectives

1.6.1 Overall objective.

The overall objective is to assess the knowledge and practices of trained HBC Volunteers for people living with HIV/AIDS in Kakamega district.

1.6.2 Specific objectives

1. To determine the level of nutrition knowledge of trained HBC volunteers.
2. To determine the practice of the volunteers in the community on HIV/AIDS and nutrition issues
3. To document challenges faced by volunteers in their work.
4. To identify coping strategies used by volunteers.
5. To determine factors associated with nutrition knowledge of HBC volunteers.

1.7 Hypotheses

1. The level of nutrition knowledge of trained HBC volunteers is adequate.
2. Nutrition knowledge does not depend on the training time and training organization.
3. Nutrition knowledge is not associated with the practice of volunteers.

1.8 Research questions.

1. Is the nutrition knowledge provided adequate and up to date?
2. Does the volunteer's level of education affect nutrition knowledge?
3. Does the training agency and training period affect the level of knowledge?

1.9 Expected Benefits

- 1 The research findings can be used to strengthen nutritional component in the programme by identifying gaps and weakness in the training
2. They could be used by other stake-holders to formulate standard guidelines for training.
3. The finding can provide baseline data for other organizations that want to build nutrition capacity for volunteers working with PLWHA
4. The findings can help the programmes make decisions on their future HBC trainings.
5. The findings may help the volunteers training and the PLWHA get better care and support from the volunteers (some volunteers are PLWHA).

1.10 Limitations of the Study.

The study would have yielded better results if it was a comparative one. The group to compare with would be untrained volunteers who are caring for PLWHA. Given the short time in the field and the lack of a sampling frame for the second group it was not possible to do a comparative study. There is lack of baseline data of what the volunteers knew

before the training. This would have been used to assess increase in knowledge from baseline.

CHAPTER 2

REVIEW OF LITERATURE

2.1 General Review

2.1.1 Global overview of the epidemic.

In 2003, almost five million people world wide became newly infected with HIV; the greatest number in any one-year since the beginning of the epidemic. At the global level the number of people living with HIV continues to grow- from 35 million in 2000 to 38 million in 2003. In the same year, almost 3 million died of AIDS and over 20 million people have died since the epidemic began in 1981 (NASCOP, 2004). In Asia an estimated 7.4 million people are living with HIV and 1.1 million people became infected in 2003 alone. In Latin America, about 1.6 million people were living with HIV by 2003. The epidemic in Latin America is concentrated among populations at high risk of HIV infection these are injecting drug users and homosexuals. In Central America, HIV spread is predominantly through sex (USAID, 2002)

2.1.2. AIDS in Sub-Saharan Africa and Kenya.

Africa is the global epicenter of AIDS. An estimation of 83% of all the worlds AIDS deaths since the start of the epidemic have occurred in Africa. Countries in Southern and Eastern parts of Africa are particularly affected (UNAIDS, 2002). Out of the 36 million people currently infected with HIV globally, approximately 70% live in Sub-Saharan Africa. There appears to be a stabilization of HIV prevalence rates, but this is mainly due to a rise in AIDS deaths and a continued increase in new infections. Sub-Saharan Africa

is home to just over 10% of the world's population and almost two thirds of all people living with HIV (UNAIDS, 2002). In 2003, an estimated 3 million people became infected and 2.2 million died (75%) of the 3 million AIDS deaths globally that year (NASCOP, 2004).

African women are at a greater risk of being infected at an earlier age than men. In 2003, on average there were 13 infected women for every 10 infected men in Sub-Saharan Africa. This difference is even more pronounced among 15-24 year olds (USAID, 2002). Rates of prevalence in pregnant women in Africa closely approximate the rates of HIV infection in the general adult population aged 15-49 years. Sentinel surveillance in antenatal clinics in Kenya has been used to estimate the prevalence and trends of HIV infection in the adult population (MOH, 2001).

Women in Africa, especially young women are disproportionately affected by HIV/AIDS. Recent studies show that women 15-19 years of age are five to six times more likely to be HIV infected than men in the same age group (UNAIDS, 2003). But older men have higher rates of infection than older women. In urban areas, prevalence is estimated to be 17%- 18%, that is 470,000 HIV infected adults. HIV prevalence in rural areas is increasing rapidly. In 2000 it was estimated to be 12%-13% in Kenya. Though prevalence is higher in urban areas, the absolute number of people infected in rural areas is larger because 80% of the population lives in rural areas, thus an estimated 72% of the infected adults live in rural areas (MOH, 2001).

Presently it is estimated that about 2.2 million Kenyans are infected with HIV/AIDS, while 1.7 million Kenyans have already died from AIDS related diseases. About 1.5 million children are orphaned due to AIDS. It is estimated that 500 Kenyans die daily of AIDS-related illness. HIV/AIDS is the highest single cause of mortality among Kenyan adults (MOH, 2001).

Most HIV transmission in Sub-Saharan Africa occurs through sexual intercourse, unsafe blood transfusions and unsafe handling of infected blood or body fluids accounting for a small fraction. Sexual behavior is the most important factor influencing the spread of HIV in Africa. This varies across cultures, age groups, socioeconomic class and gender (UNAIDS, 2002; Barlet and Finkbeiner, 1998).

Since most new HIV infections are transmitted by heterosexual contact, people are at risk of being infected immediately they become sexually active. The pattern of infection is similar everywhere in Kenya. Infection levels are extremely high for girls and young women. The highest infection levels for women are in the 20-24 age group, while for men the highest infection levels are found in the 30-39 age group. Research suggests that high proportions of Kenya's teenagers are sexually active and this puts many of them at risk of HIV infection. In a nationwide study of women 12 to 24 years old, 25% said they lost their virginity because they had been forced. In Nyanza, a quarter of secondary school boys and half of the girls described their first sexual experience as unpleasant. When one has sex unwillingly it may lead to bruises and if the partner is infected it carries a higher risk of infection , especially for girls (MOH, 2001).

AIDS affects all aspects of social and economic life in Kenya. The sectors that are severely affected are health, education, military, transport, communication, information and agriculture (NACC, 2000). These sectors can play an important role in combating the epidemic. AIDS causes a reduction in the size and experience of the labour force, increased health care expenditure, high cost of labour and reduced savings and investments. It strikes people in the most productive age groups and is 100% fatal. The economic effects of AIDS are felt by individuals and families, and then ripple outwards to firms and businesses and the macro-economy (MOH, 2001).

2.2 Relationship Between HIV/AIDS and Malnutrition

Malnutrition is a serious danger for people living with HIV/AIDS, even at the early stages of HIV infection when no symptoms are apparent HIV/AIDS make demands on the body's nutritional status. The risk of malnutrition increases significantly during the course of infection (WHO/FAO 2002)

Providing sufficient food and nutrition to meet people's basic needs for health, growth and development has been a long-standing challenge for developing countries. This challenge is further exacerbated by the emergence of HIV/AIDS. At a national and family level the HIV epidemic has weakened societies and economic status in Africa making it even more difficult to ensure food security, education and other basic services. On personal level HIV/AIDS contributes to malnutrition for physiological reasons related to the infection itself and because people living with HIV/AIDS often have diets that are deficient in energy, protein, vitamins and other nutrients. HIV infection compromises the

nutritional status of infected individuals and in turn, poor nutritional status can affect the progression of HIV infection. (Piwoz and Preble, 2000).

Nutrition and HIV are linked. The relationship between HIV/AIDS and malnutrition presents the well-recognized vicious cycle of immune dysfunction, infectious disease and malnutrition. Good nutrition cannot cure AIDS or prevent HIV infection but it can help to maintain and improve the nutritional status of a person with HIV/AIDS and delay progression from HIV infection to AIDS related diseases. It can therefore improve the quality of life of people living with HIV/AIDS. Nutritional care and support are important from the early stages of the infection for prevention of the development of nutritional deficiencies. A healthy and balanced diet will help to maintain body weight and fitness. Eating well helps to maintain and improve the performance of the immune system and therefore helps a person to stay healthy.

Many of the conditions associated with HIV/AIDS affect food intake, digestion and absorption, while others influence the functions of the body. Many of the symptoms of these conditions (e.g. diarrhoea, weight loss, sore mouth and throat, nausea or vomiting) are manageable with appropriate nutrition. Good nutrition will complement and reinforce the effect of any medicine taken (WHO/FAO, 2002.)

Infections affect nutritional status by reducing dietary intake, and nutrient absorption by increasing the utilization and excretion of proteins and micronutrients as the body mounts its phase response to invading pathogens. Anorexia, fever and catabolism of muscles

frequently accompany the acute phase response. Infections also result in the release of pro-oxidant cytokines and other reactive oxygen species. This leads to the increased utilization of antioxidants, vitamins (e.g. Vit E, Vit C, beta carotene) as well as the sequestration of several nutrients (e.g. Iron, Zinc, Selenium manganese Copper) that are used to form antioxidant enzymes. Oxidative stress occurs when there is an imbalance between the pro-oxidants and antioxidants causing further damage to cells, proteins and enzymes (Schwarz, 1996)

Any immune impairment as a result of HIV/AIDS can contribute to malnutrition. Malnutrition leads to immune impairment, worsens the effects of HIV and contributes to a more rapid progression of the disease. Thus malnutrition both contributes to and is a result of HIV disease progression. A person who is malnourished and then acquires HIV is more likely to progress faster to AIDS because the body is already weak and cannot fight co-infections, particularly without access to ARV's and prophylactic medications. A well-nourished person has a stronger body for coping with HIV and fighting illnesses.

Timely improvement in nutritional status can help strengthen the immune system, thereby reduce the incidence of infections, preventing loss of weight and lean body mass and delaying disease progression so that HIV has less chance to develop in a person who is well nourished. Good nutrition helps the body fight disease as shown in the figure below.

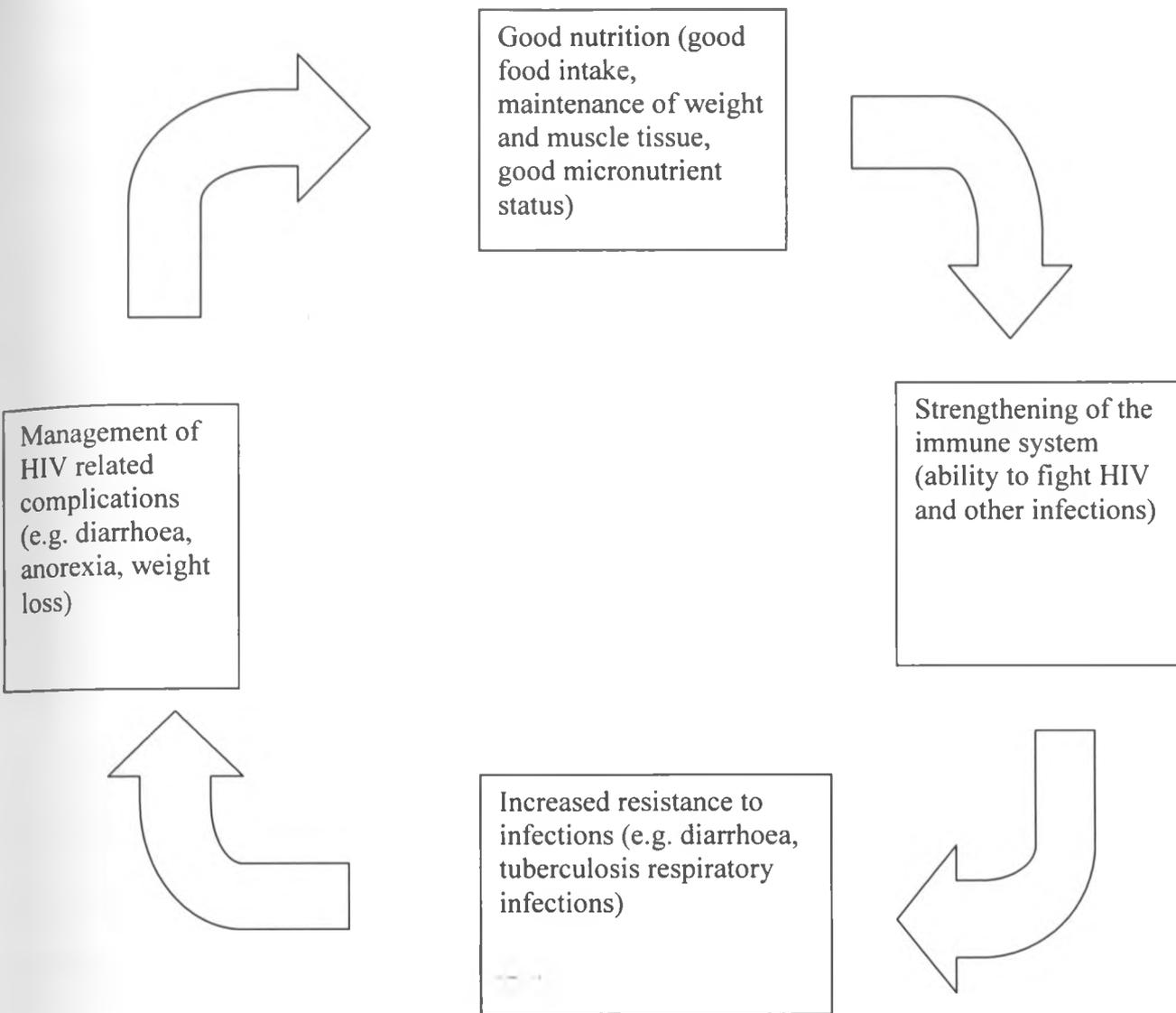


Figure 1.1: The cycle of good nutrition and persistence to infection in the context of HIV/AIDS

Source: FANTA (2004): HIV/AIDS: A Guide for Nutritional Care and support 2004

Some nutritional deficiencies can be reversed by timely and adequate nutritional support therapy. Nutritional care and support helps people living with HIV to manage related complications, promotes good responses to medical treatment and improves the

person's quality of life by maintaining strength, comfort level of functioning and human dignity. Nutritional care and support is especially effective for those HIV-positive people who have not yet progressed to the stage requiring ARV treatment (FANTA, 2004). HIV infections affect nutrition through increase in resting energy expenditure, reduction in food intake, nutrient mal-absorption, loss and complex metabolic alterations that culminate in weight loss and wasting common in AIDS. The effect of HIV on nutrition begins early in the course of the disease; even before an individual may be aware that he or she is infected with the virus (FANTA, 2004).

The impact of pre-existing malnutrition on HIV susceptibility and disease progression is not yet well understood. Early studies showed that weight loss and wasting were associated with increased risk of opportunistic infections and shorter survival time in HIV-positive adults, independent of their immune status. Other studies showed that clinical outcome was poorer and risk of death was higher in HIV-positive adults with compromised micronutrient intake status. (FANTA, 2004)

Nutritional intervention studies conducted in West Africa suggested that early intervention to improve the energy and protein intake of women living with HIV help built their reserves and reduce their vulnerability to weight loss associated with diarrhoea and other opportunistic infections. As well, improving micronutrient intake and status help strengthen the immune system, reduce adverse consequences of infection related oxidative stress and lengthen survival. Recommendation for nutrition care and support for women living with HIV/AIDS vary depending on underlying nutrition status, the extent

of the HIV disease progression and whether she is pregnant or breastfeeding. Nutritional care and support can therefore be used as part of the holistic HIV/AIDS care package to help women living with HIV remain healthy, economically productive thus improving the quality of their lives. The impact of nutrition on maternal survival and HIV transmission during breastfeeding is currently being studied (Afoakwa, 2003)

AIDS wasting syndrome is defined as 10% weight loss of baseline body weight plus either chronic diarrhoea (3 loose stools per day for more than 30 days) or chronic weakness and documented fever for 30 days or more, intermittent or constant, in the absence of a concurrent illness or a condition other than HIV infection. Wasting is characterized by loss of lean tissues. Lean tissues in the body are responsible for most of the body metabolic functions including processing medications. The body starts to lose its major functions as damage to the immune system and weight loss progress (FANTA, 2004)

2.2.1 HIV infection related symptoms and illnesses with nutritional consequences

The following symptoms and illness commonly caused by HIV infection have nutritional consequences that can lead to malnutrition. FANTA, 2004 defines them as follows:

Anorexia is a loss of appetite. It may occur with the onset of infection and when fever is present, or as a side effect of medication. It leads to general weight loss and is common when individuals are depressed or living in seclusion and emotionally unfavorable environments.

Diarrhoea is a condition where a person passes three or more watery or loose stool in a day (WHO/FAO, 2002). There are several causes of diarrhoea including bacterial and viral infections, parasites and as a side effect of some medical treatment. It results in losses of water and nutrients and leaves a person at great risk of dehydration. Diarrhoea also reduces appetite and leads to poor nutrient absorption. Severe malnutrition can occur following prolonged periods of diarrhoea.

Fever is a condition where the body temperature rises above 37 degrees Celsius. People with acute or chronic fever may have chill, sweat excessively, have muscle and joint aches, or be fatigued. Fever is common with PLWHA and does not necessarily indicate serious illness. The reasons for fever vary and it is often hard to determine whether fever is due to HIV or other illnesses such as malaria or other infections. Fever increases body energy expenditure and requirements.

Nausea and frequent vomiting: Nausea and vomiting can result as an adverse effect from drugs used in treatment of HIV/AIDS or opportunistic infections. This condition may cause reduced appetite and voluntary restriction of food. Vomiting lowers the amount of nutrients available to the body.

Thrush: Thrush is a fungal infection caused by the candid fungus and is common in HIV-infected people. It appears as whitish spots on the inside of the mouth, tongue, oesophagus, intestines, vagina or anus. Although these sores are uncomfortable, they are

not life threatening. These sores can result in poor ingestion of food, loss of appetite, reduced food intake and malabsorption leading to weight loss.

Anaemia: anemia is a low level of haemoglobin in the blood. It results from inadequate number of red blood cells that are important for carrying oxygen. Iron deficiency from poor dietary intake and or absorption of iron causes approximately 50% of global anaemia. Other causes include infections diseases such as malaria, TB and HIV/AIDS, infections such as hookworm, other vitamin deficiencies (e.g. B12 or folic acid) genetic blood diseases, contraceptive methods (intrauterine devices) and closely spaced pregnancies. The relationship between HIV and anaemia is not clearly understood, although it is known that HIV- infected persons who are anaemic generally progress faster to AIDS than those who are free of HIV/AIDS (FANTA, 2004).

2.3 Handling Common Nutrition Related Complications in HIV/AIDS

2.3.1 The role of nutrition education as HIV infection develops

Nutrition education is given for various reasons during HIV progression. When one is HIV positive with no symptoms, nutrition education is mainly for positive nutrition practices. When the infection develops to clinical AIDS, in addition to positive nutrition practices, nutrition education should address the symptoms experienced. The role of nutrition education as HIV infection develops is shown in table 1.1.

Table 1.1: The role of nutrition education as HIV infection develops

<p>Progression of HIV infection</p> <p>HIV +</p> <p>No symptoms</p> <p>Immune system weakening</p>	<p>Nutrition education to promote</p> <ul style="list-style-type: none"> • Positive nutrition practices • Practical measures to grow/prepare appropriate foods/protect food security and hygiene • Awareness of the importance of recognizing signs of weight loss and the need for prompt action
<p>Progression to clinical AIDS</p> <p>Weight loss</p> <p>Diarrhoea</p> <p>Opportunistic infections</p> <p>Weakening</p>	<ul style="list-style-type: none"> • Continued positive nutrition practices • Actions to prevent weight loss and to regain lost weight • Early treatment of infection • Continued eating during infection • Home remedies for common problems, e.g. Loss of appetite, sore mouth, diarrhoea.

Adapted from: *WHO/FAO, 2002*

2.3.2 Importance of healthy balanced diet for PLWHA

Healthy and balanced nutrition should be one of the goals of counseling care for people at all stages of HIV infection. An effective programme of nutrition care and support will improve the quality of life for PLWA by:

- Monitoring body weight
- Replacing body minerals and vitamins
- Improving the function of the immune system
- Extending the period from infection to the development of the AIDS condition
- Improving response to treatment, reducing time and money spent on health care.
- Keeping HIV infected people productive and able to contribute income in their families.

2.2.3 Nutrient requirements for PLWHA

Recommendations for nutrition counseling and care for people with HIV/AIDS vary depending on the underlying nutritional status of the individual and the stage of infection or level of disease progression and personal preferences. Advice provided during the early (a symptomatic) stages of the infection will focus on maintaining health and building nutrient stores; during the middle stages of the disease, emphasis may shift to managing problems associated with anorexia, acute infection lasting less than two weeks), and mal-absorption of fat and related nutrients. Once secondary infection becomes chronic, an infection induces changes in metabolism, causes protein catabolism and wasting related symptoms, nutrition support will be oriented towards mitigating the adverse nutritional effects of chronic diarrhoea and other infections, and recuperative

feeding during periods when symptoms have subsided. Nutrition support is likely to be more effective at promoting well being, independence, and quality of life if it is provided at the early stages of the infections rather than only during later stages of the disease (Stack et al, 1996). The nutritional needs of HIV-infected persons depend on the stage of the disease progression. Required intake levels are suggested based on the absence or presence of symptoms such as fever, diarrhea, weight loss and wasting.

Energy requirements

The HIV-infected person has additional energy needs because of:

- Energy used for HIV infection and opportunistic infections.
- Nutrient mal-absorption
- Altered metabolism.

The various phases of the infection are marked by an increase in metabolism, increased energy needs and nutrient depletion. These effects of infection often occur synergistically and result in weight loss and wasting. In the absence of AIDS symptoms, HIV-infected persons should increase energy intake by 10 percent over the level of energy intake recommended for healthy non HIV-infected persons of the same age, sex and physical activity level. (FANTA, 2004)

In the presence of symptoms, HIV-infected persons should increase energy intake by 20-30 percent over the level of energy intake recommended for healthy non HIV-infected persons of the same age, sex and physical activity level.

Children's energy requirements increase in a similar manner as adults depending on the stage of infection. However, when a child is both symptomatic and losing weight, energy requirements increase by 50 -100 percent of requirements for healthy non-HIV infected children of the same age (FANTA, 2004).

Protein requirements

According to WHO (2003a) nutrient requirements for PLWHA "data are insufficient to support an increase in protein requirements due to HIV infection." HIV-infected persons do not require more protein than the level recommended for healthy non HIV-infected persons of the same age, sex and physical activity level. At the onset of opportunistic infections, the body loses nitrogen which suggests a need for increased protein intake if opportunistic infections remain untreated. Studies have not demonstrated, however, that improved clinical cases occur from increased protein intake among HIV-infected individuals, further research is needed on the optimal protein requirements of HIV -infected persons during the course of HIV disease. HIV-infected people often have pre-existing protein-energy malnutrition. Protein-energy malnutrition (PEM) results from inadequate intake or poor utilization of food and energy, not a deficiency of one nutrient, and not usually simply a lack of dietary protein. Programs may need to address the deficiency by increasing intakes to meet the recommended levels. The above also applies to children who are HIV -positive (FANTA, 2004).

Fat requirements

According to the WHO guidelines, there is no evidence that fat requirements are different because of HIV infection. However, certain ARV or certain infection symptoms such as diarrhoea may require changes in timing or quantity of fat intake in some cases (WHO, 2003b).

Micronutrient requirements.

WHO does not recommend micronutrients beyond the recommended level for healthy non HIV-infected persons of the same age, sex and physical activity level. However, micronutrient deficiencies are common in areas where HIV is prevalent. Deficiencies of vitamins and minerals such as vitamins A, B complex, C, E selenium and Zinc, which are needed by the immune system to fight infections, are common in people living with HIV. Deficiencies of antioxidant vitamins contribute to oxidative stress, a condition that may accelerate cell death and increase HIV replication. Good nutrition is best achieved by consuming a diverse diet with foods rich in micronutrients, especially vitamins A, B6, B12, and selenium, iron and zinc (FANTA, 2004).

2.3.4 Recommended dietary practices for symptomatic illnesses associated with

HIV

When HIV infection occurs, the body's immune system is attacked and weakened. With time, HIV manages to rob the body of protection or resistance, rendering it prone to disease. Below are recommended dietary practices that help in the management of symptomatic illnesses associated with HIV.

Diarrhoea

For PLWHA, the nutrition care includes:

- Plenty of fluids, soup, juices.
- Foods rich in soluble fibers
- Fermented foods like porridge and yogurt
- Small frequent meals
- Soft foods; bananas mashed carrots, squash etc
- Starchy foods.
- Animal protein
- Boiled or steamed foods

Anorexia

For anorexia, the following is recommended:

- Small frequent meals
- Favourite foods
- Energy dense foods
- Avoiding strong smelling foods

Fever

- Drinking plenty of liquids

Vomiting and nausea

Vomiting and nausea can be chronic and become part of daily life for PLWHA. Nutrition care includes:

- Drinking fluids in small amounts
- Dry and salty foods
- Small frequent meals
- Sitting up when eating
- Avoiding empty stomach
- Avoiding fatty and very sweet foods

Thrush

Thrush has serious nutrition consequences as it causes ulcers in the gut. To encourage PLWHA to continue eating, they should eat

- soft foods
- Cold or room temperature foods
- Avoiding sugary foods (helps yeast to grow)

Constipation

Constipation can cause less food intake for PLWHA, to avoid this one needs:

- Foods high in fiber content.
- Drinking plenty of liquids
- Exercising regularly

Skin infections

- Taking plenty of foods rich in vitamins A and B6

Coughs, flu and sore throat

When PLWHA have coughs, flu and sore throat, the recommendation is:

- Drinking plenty of liquids
- Drinking Lemon and Honey solutions
- Gargling a strong solution of salt and water severally.

Anaemia

For anaemia PLWHA one takes

- Iron and folic rich foods
- Vitamin C rich foods
- Iron and folic supplements
- No tea, milk, cocoa at meal times

Muscle wasting

- Increasing food intake through frequency and quantity taken.
- Improving quality and quantity
- Small frequent meals

Compiled from FANTA, 2004

2.4. Emerging Issues on ARV's and Nutrition

2.4.1 ARVs and pre-existing malnutrition

Most existing recommendations on ARV's are based on research with well nourished relatively food secure population groups. The dietary implications for individuals

suffering from pre-existing protein energy malnutrition and micronutrient deficiencies may be different such as in resource limited settings. This relates both to drug efficacy and nutrient absorption and metabolism. For example, what is the effect of pre-existing malnutrition on absorption or metabolism of ARVs given that malnutrition adversely affects medication efficacy? Are there specific nutritional responses that can mitigate these specific effects? Conversely, what is the impact of medication on malnourished individuals? These questions, as yet, do not have answers.

2.4.2 ARVs and breastfeeding

Breastfeeding is strongly encouraged and recommended, practised in resource limited settings, including HIV-positive women. WHO recommends that “when replacement feeding is acceptable, feasible, affordable, sustainable and safe, avoidance of all breast feeding by HIV infected mothers is recommended. Otherwise, exclusive breastfeeding is recommended during the first month of life. To minimize HIV transmission risk breastfeeding should be discontinued as soon as it is feasible, taking into account local circumstances, the individual woman’s situation and risk of replacement feeding including infections other than HIV and malnutrition ”(WHO et al 2003).

2.5.Home-based Care

2.5.1 Background information

Home based care includes the care given to the sick and affected in their own homes and care extended from the hospital or health facility to their homes through family participation and community involvement. This is a collaborative effort between hospital,

family and community. It includes components such as physical, psychological and spiritual support (NASCO, 2002b). The key helpers in the care of PLWHA are the patients who provide own care if not too sick. Next, are the family members, relatives, friends, and community members. All these people need nutrition knowledge to make them competent in nutrition care and support. Home based care training promotes effective and compassionate care for PLWHA.

Several facts have led to the promotion of HBC. Inability of both patient and relatives to pay hospital bills and overstretched national health care system have provided the drive for alternative methods of HIV patients care e.g HBC. HBC also provides the patient with regular support from the family and friends which hospitals cannot provide. HBC puts both patients and family in close proximity, allowing the patient that sense of belonging and significantly reduces travel expenses to and from hospital for the patient and family members.

With growing numbers of people infected or affected by HIV/AIDS many things have come to the knowledge of individuals and nations:

- Sick people with AIDS are discharged from the hospitals where there are trained professionals and sent home where they are usually cared for by untrained relatives with no professional back-up support.
- The caregivers at home are most often women and children with no training in nursing the sick or in how to protect themselves or other family members from

infected materials. They also do not know how to protect the PLWHA from common infections.

- The PLWHA need continuity of quality care to prolong their lives and reduce suffering.
- There are limitations on hospital care, including limited resources that can be given to PLWHA.

All these concerns mean that PLWHA cannot get the needed appropriate care.

Home-based care is one way to ensure that quality care can be continuously provided for PLWHA outside the health unit level (NASCO, 2002b)

HBC is not without problems. A family that cannot afford to pay hospital bills because of poverty may also find it difficult to afford a nutritionally rich diet that HIV patients need to stay in good health and purchase essential medicines. Both family and other members of the community lack the nursing skill required to manage HIV patients. Appropriate training therefore needs to be provided. Nursing of the HIV patients may also take up a lot of time and the family members may be unable to continue with employment or other income generating activities. This further drains household income. Children, especially girls, may be taken out of school so as to provide care. This is likely to have detrimental long-term consequences for these children, the community and entire nation. HBC programmes attempt to:

- Ensure that the patients get adequate nursing and other support necessary to cope with the disease.

- Make it possible for health care personnel to make house calls
- Train volunteers, HIV patients and close relatives in basic patient care and infection control; combine care with HIV protection initiatives.
- Encourage acceptance of HIV patient in the community
- Reduce over crowding in hospitals thus freeing resources for the management of other diseases
- Promote good nutrition and personal hygiene
- Encourage and motivate HIV patient.

Use of some basic medical provisions and basic nursing skills can give family members and volunteers the means to provide quality HBC to HIV patients with the support of the their local health care centers and personnel (Murrah and Kiarie, 2001).

Community based nutrition programmes are intended to address the problems where they occur i.e. the households within communities. In adapting processes that strengthen the capacity of communities, such programmes simultaneously contribute to fulfillment of several rights and address the right to participation of the community (Yambi and Belbase, 2003).

Causes of malnutrition in Africa are many and diverse. Major contributing factors to this deteriorating situation include poverty, low level of external investment, declining economic growth, natural disasters, civil war, poor governance, political instability and HIV/AIDS pandemic. The poor nutritional status is aggravated by weak programme

responses to nutrition problems. A number of situation assessments have identified the lack of adequate capacity, networking and linkages for education and training, action research and programme development as a major obstacle to the design of effective programmes that would improve health and nutrition status in Africa. The implication of HIV/AIDS pandemic for nutrition are monumental. Households are being left without primary care givers and young children are left without option but for siblings without capacities to do so (Atinmo, 2003).

2.5.2 Objectives of home based care programmes

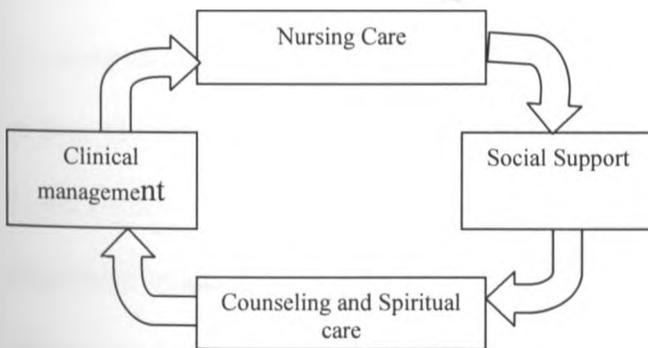
Ministry of health 2003 gives HBC programmes objectives as follows:

1. To facilitate the conformity of care of the PLHWA from the health facility to the home and community.
2. To promote family and community awareness of HIV/AIDS prevention and care
3. To empower the family and community with knowledge needed to ensure long term care and support.
4. To raise acceptability levels of PLWA by the family/community in order to reduce the stigma associated with AIDS.
5. To streamline the patient /client referral from the community to appropriate health and local facilities.
6. To facilitate quality community care for the infected and affected.

2.5.3 Components of home based care

Home-based care has four main components (NAS COP, 2002b). These are:

1. Clinical management- includes early diagnosis, rational treatment and planning for the follow up of HIV related illness. HBC volunteers liaise with medical staff attached to HBC to see clients in the homes.
2. Nursing care includes care to promote and maintain good health, hygiene, nutrition and ultimately to assist the terminal patient to a peaceful dignified death.
3. Counseling-includes stress and anxiety reduction, promoting positive living and helping individuals make informed decision on HIV testing, planning for the future and behavioral change and involving sexual partners in such decisions.
4. Social support- includes information and referral to support groups, welfare services and legal advice for individuals and families, including surviving family members and where feasible the provision of material assistance.



Every programme should have all the elements.

Figure 1.2: Components of HBC programmes

Source MOH, 2003 Home-Based Care Orientation Package-2003.

2.5.4 Importance of HBC

Home-based care is important as it is one way to ensure that quality care can be continuously provided for PLWHA outside the health system units. HBC strives at ensuring the following:

1. PLWHA learn self-care skills and positive living.
2. Family/care givers learn new skills e.g., how to cope more effectively.
3. Community Health workers link PLWHA and family to other services.
4. Health system is less stressed and so offers better overall care.

2.5.5 Qualification of HBC providers

These are usually community health workers or volunteers. They should have the following qualifications

1. Convincing educators who will facilitate change in attitude and behaviour.
2. Committed to the fight against HIV/AIDS
3. A caring attitude towards the afflicted.
4. A lifestyle consistent with HIV prevention message.
5. Local community members.
6. High motivation to work with people.
7. Able to read and write well enough to maintain records.(MOH, 2003)

2.6. Methodology of Some Studies in HBC

Some studies have been carried out on HBC. The abstracts book for the thirteenth International Conference on AIDS and Sexually Transmitted Infections in Africa held in Nairobi on September 21st-26th 2003 presents some studies that have been carried out in assessing HBC. Quality care delivery assessment and Meeting the needs of PLWHA through community based care in Zambia are cited as examples.

2.6.1 Quality care delivery assessment

Study objective; The study objective was to assess the quality of home care delivery to clients in need of home care, by the volunteer care givers and family care givers. The study sought to find out how time spent on HBC was apportioned among different activities carried out.

Design; It was a prospective study involving 3015 patients in need of home care in 25 community based care projects within the city of Lusaka

Participants; volunteer caregivers, home-based care coordinators and clients.

Results

Out of all the time used by volunteers on HBC, 75% of the time meant for an average visit was spent on traveling, 4.9% on health education, 4% on counseling, 2.4% on administrative matters such as recording information, 2% on care and 0.1% on training family care givers.

Major constraints to quality care delivery included

- Excessive workload for volunteer and family care givers
- Inadequate transport, and insufficient resources, on the part of the volunteer care givers
- Family care givers reported inadequate food and insufficient resources as major problems contributing to poor quality of care delivery
- Clients attributed lack of good quality care to inadequate food and lack of medicine (Amisi ,2003)

2.6.2. Meeting the needs of PLWHA through community based care in Zambia

Issues; in order to be effective, community and HBC programme must provide services that PLWHA need. The study examined the extent to which a programme that trained youth to provide care and support to PLWHA responded to the needs of PLWHA and their families.

Description; 300 youth club members were trained to provide care and support to PLWHA in Luapula province. Supplies such as soap, disinfectant, gloves and cotton wool were periodically provided. Data were collected from youth at base line and one year after intervention activities begun. Qualitative data were collected from PLWHA family members and youth care givers.

Results; The services youth care givers felt most able to provide were environmental cleaning (87%), nursing care (50%), counseling on positive living (44%) and referral (25%). Important unmet needs of PLWHA were found to be food (72%) money (58%), drugs/medicines (53%) and transport (32%). Additional training on counseling (58%), first aid (53%), nutrition (31%) and VCT (29%) was deemed necessary by youth caregivers to improve services.

Lessons learned

- It is important to define and communicate what community based care programmes can do and not do so as not to raise undue expectations.
- Training PLWHA and family members can improve self reliance and better management of ailments
- Provision of materials is essential to motivate caregivers and give them confidence.

Recommendations from the study

- Networking is essential to address needs of PLWHA
- Periodic trainings is necessary to address new information and skills needed (Motsepe J. et al., 2003)

Both studies were prospective in design which enabled the researchers to follow the volunteers for some time which was good. In both studies the knowledge of caregivers was not assessed and that was a limitation as it is not possible to determine what the

volunteers knew and what they were passing to PLWHA but it was evident that nutrition was one of the areas that needed further training.

2.7 Gaps in knowledge

There are still many gaps in the understanding of the relationship between HIV/AIDS and nutrition. The extent, and how nutritional therapy or supplementation positively affects HIV – infected individuals is still unclear. Nevertheless according to WHO/FAO (2002), nutrition is a vital and often neglected component of HBC. Hence as expressed by Piwoz and Preble (2000), finding effective, affordable and acceptable nutritional interventions for PLWHA is important

HBC is a recent phenomenon. Not many studies have been carried out especially to assess the practices of HBC volunteers. The literature review implicates the importance of having well trained resource people in tackling malnutrition. Data on the practices of volunteers as the key players in HBC is therefore very important.

Further research is urgently needed on the nutritional management of HIV in the African context, where HIV is spreading rapidly, malnutrition is endemic and resources for management of both HIV and malnutrition are extremely constrained. Given these gaps, this study focused on assessing the nutrition knowledge and practices of trained HBC volunteers in Kakamega district of Kenya.

CHAPTER 3

METHODOLOGY

3.1 Study Setting

Kakamega District is one of the eight districts in Western Province. It borders Busia, Siaya, and Bungoma to the West, Nandi, Uasin -Gishu to the East, Trans-Nzoia to the North and Vihiga district to the South. It lies between longitude $34^{\circ} 20'$ and $35^{\circ}E$ and latitudes $0^{\circ}15$ and $1^{\circ}N$ of equator. It has a total area of 1498 square kilometers, seven divisions and population of 603,422 people (GOK, 2001)

The altitude range is 1400-1600 meters above sea level with an annual rainfall of 1250-2500 millimeters. It has two rain seasons, the long rains in March to June with a peak in May, and the short rains in July to September. The temperature range is a mean maximum $22-28^{\circ}c$ and mean minimum range $10-14^{\circ}c$. (Kakamega District Agricultural Annual Report, 2003)

The main economic activity in Kakamega is agriculture. This is basically a manual occupation that needs a healthy person. Major crops include maize, coffee, and cane. The others are bananas, beans and horticultural crops. The livestock kept are cattle, goats, sheep and poultry. Out of the population, 51% live below the poverty line while the infant mortality rate is 82 deaths/ 1000 live births.

The seriousness of HIV/AIDS epidemic and seeks to minimize the social, economic and development consequences to the community is acknowledged in the district. HIV prevalence in Kakamega amongst suspected cases(those who do not request to be tested but diagnosed by the medical facilities because of past risky behaviour) rose from 23.8 percent in 1999 to 31 percent in 2000, while the prevalence rate among blood donors rose from 7.1 to 11.7 percent during the same period (GOK, 2002).

At the household level, HIV/AIDS had negative impact. Many children whose parents died of AIDS lack the basic necessities for survival and are kept out of school to care for the sick and help support the family businesses. The number of destitute children without any one to look after them is rising. The situation worsens when the little income earned at family level is spent on treatment and funerals, leaving little or nothing to support the surviving family members (GOK, 2002).

The impact of HIV at village level is manifested in the overstretched resources of families and villages to address the needs of the infected and affected. Resources that would have been used for investment are diverted to health care, orphan care and funerals.

HIV/AIDS epidemic threatens to undermine achievements in education and supply of experienced labour force in the district. Agriculture which employs over 90 percent of the labour force in the district is threatened by the HIV/AIDS epidemic. Productivity has dropped due to morbidity and mortality of labourers resulting in low agricultural output

(GOK 2002). In the health sector the epidemic has increased the cost of health care.

HIV/AIDS is now straining the limited health facilities accounting for up to 55 percent of bed occupancy in the district. Spending on HIV/AIDS care is therefore crowding spending on other health programmes (GOK, 2002).

HIV/AIDS is reducing the district population of productive age between 15-59 years.

Young people aged between 15 and 24 years are disproportionately affected by

HIV/AIDS. As a result of this, the population structure is changing and will comprise of very young and elderly who are not economically active but principally dependants.

To reduce the impact of HIV/AIDS, the district is focusing on education. The education being intensified includes health care, voluntary counseling and testing and prevention of mother to child transmission. The District AIDS Control Committee (DACC) in conjunction with Constituency AIDS Control Committee (CACC) face the challenge of designing and promoting appropriate safety nets for care, education and support to orphans and widows through community participation. Multi-sectoral campaigns approach against AIDS using faith-based organizations, schools, news media, NGOs and Provincial Administration is used (GOK, 2002).

Successful implementation of the multi-sectoral approach requires effective management and coordination of a large number of diverse stakeholders. Resources need to be marshalled from a variety of sources, and interventions must be implemented at the district level and below. Home-based care is one way to ensure that quality care can be continuously provided for PLWHA outside the health unit level (NAS COP, 2002a)

Home-based care in Kakamega

The home-based care (HBC) concept started when hospitals could no longer handle the number of patients with HIV/AIDS and thus needed to be decongested. In July 1997, two staff from the Ministry of Health were trained as trainers in HBC. These two staff were to work with collaborators offering HBC in the district. The Ministry of Health reviewed the kind of knowledge that would be needed to care for the sick at home. Nothing was implemented until 1999 when Pathfinder (an NGO working in Western Province in reproductive health) recruited people to train in HBC. One of the people recruited as a trainer by Pathfinder had earlier been trained by the Ministry of health. The recruitment was approached from the grass root level. Leaders were sensitized about HBC. These leaders then identified the people to be trained. In Western Province the pioneer areas were Kabras, Mukumu (in Kakamega district) and Butula in Busia. The people recruited had to have basic education of class eight and above. They were also required to have done some community work in community based health development. The curriculum that had been developed by Pathfinder was used. This curriculum was later reviewed and adopted by the Ministry of Health. It was published by NASCOP in 2002 as Training home-based caregivers to take care of people living with HIV/AIDS: A curriculum for training health workers in Kenya. The manual has a chapter on nutrition which has information on the three food groups, common nutrition problems and HIV mothers and babies. The training was based on four components:

- Clinical
- Nursing
- Nutrition

- Counselling

Currently the curriculum also includes ARV issues, TB management and reproductive health. Pathfinder is the leading trainer in HBC in Kakamega district. From 2000 to date it has trained 133 volunteers . Faith based organizations and other NGOs are also playing a role in HBC in the district (Wanyonyi , 2005 personal communication). Brief information on the organizations which have trained many volunteers is given below.

Pathfinder HBC project

The Pathfinder HBC project in Kakamega is the oldest and has trained most of the volunteers in the district. The Pathfinder HBC project started in 1999 with a baseline survey to identify needs of PLWHA. It is a community based project whose aim is capacity building for communities. The community identifies people who get trained by Pathfinder. The first volunteers were trained in 2000. The trained HBC volunteers identify PLWHA and link them to appropriate support services in the community. The volunteers also do community mobilization and sensitize the community on HIV/AIDS issues. The trained volunteers counsel the community so that they make informed decisions. The project works with health facilities. The PLWHA are encouraged to form post test clubs after knowing their status. The post test clubs act as support groups for PLWHA and members of the clubs meet regularly. Some have started income generating programmes. Some invite facilitators to handle issues concerning them. The post test clubs then register as community based organizations (CBO) and solicit for help from anywhere else. The CBOs get linked to microfinance institutions for loans so that they

can carry out income generating activities as individuals or groups. The CBOs are used as agents of change in the community. Pathfinder conducts 3-4 refresher courses per year. The refresher courses include any new information the volunteers need to know. Supervision is carried out regularly.

JOY HBC project

Joy HBC project is a faith based organization. It operates under Deliverance church Kakamega. It was started in 2005. The volunteers help PLWHA. One refresher course is carried out every year. The volunteers offer clothing and blankets donated by church members to the PLWHA. Supervision is carried out regularly. Joy had trained 22 HBC volunteers.

GROOTS (Grass Root Organization Operating Together in Sisterhood)

This is an NGO that deals with capacity building of volunteers already working with PLWHA. It is not based in Kakamega district. In 2003 two people were trained as trainers then in 2004 one training was conducted. The 13 volunteers meet on their own once per month and help each other update their knowledge. There is no regular supervision of their performance from the head office based in Nairobi.

3.2 Study Design

The study was cross sectional and sought to assess the knowledge and practices of the trained home based care volunteers. The exposure to training and the level of

knowledge and practices were assessed simultaneously. The descriptive nature of the study gave a clear picture of what was happening at that particular time.

3.3 The Study Population

The study population comprised of volunteers trained by various NGOs, CBOs and the Ministry of Health in Kakamega district. The trainings had been conducted since 2000. These organizations were approached in order to help identify the trained volunteers.

3.4 Sample size determination

The sampling frame comprised of all the trained home based care volunteers in Kakamega. A list of the study population (200) was obtained from the various trainers but 146 participated in the actual study hence constituted the sample population. Some of the people trained as HBC volunteers are PLWHA. Focus group discussions were planned. The 3 focus group discussions were done in Municipality division of the district. The 27 participants of the focus group discussions were representative of the kind of people the volunteers care for. The focus group discussions were done with members of post test clubs who were used to meeting and sharing their issues.

3.5 Sampling Procedure

The Ministry of Health was approached to provide information on organizations that provide home-based care services in the district. Pathfinder was the organization that was given as the organization that would have the best information on home-based care services in the district. The Pathfinder office gave contacts of their field supervisors and the field supervisors gave the names of the other organizations giving home-based care services. A list of all trained volunteers was obtained from the NGOs and CBOs that carry out the trainings. The study aimed at interviewing all the trained volunteers. The interviews were carried out when the volunteers had their group meetings once dates for the meetings were obtained from the group leaders. It would have taken a lot of resources to reach them in their homes because they were all over the district all volunteers were expected to attend group meetings. Pathfinder trained volunteers had monthly meetings in members homes. These were the venues for the interviews were carried out while volunteers from Joy were interviewed at their training venue. Volunteers from GROOTS met once a month at a central venue where they were interviewed. Out of the list of 200, 10 participated in pre-testing, 10 had died, seven had relocated from the district and 27 could not be reached. A total of 146 participated in the study. The volunteers chosen for pretesting were from all trainers. The volunteers saw the interviews as personal examinations and were not did not share the contents with the rest. Most of the volunteers pretested were also isolated by distance from the rest. Once volunteers gathered at the meeting place, each would be taken aside interviewed then leave the venue.

Three focus group discussions were conducted. PLWHA invited for the focus group discussions were representative of the PLWHA. Both sexes were represented and different socio-economic status considered. For each focus group discussion 15 people were invited. The first focus group discussion had 10 people (2 men 8 women), the second 8 people (1 man, 7 women) and the last 9 people (3 men, 6 women). They were members of existing post test clubs. The post test clubs were clubs formed by people who know their status and want to live positively and support each other. All the focus group discussions were done in municipality division which has post test clubs under Pathfinder. In areas without post test clubs it was not possible to carry out FGDs. The PLWHA not in post test clubs usually are not free to be known that they are sick due to stigma. This made it impossible to bring them together however much we tried with the volunteers

3.6 Data Collection and Management

3.6.1 Tools and methods

The tools that were used in data collection were a semi structured questionnaire and a focus group discussion guide. Observations were done on the condition of PLWHA when they came for the focus group discussions, supplies given to volunteers when supplies were issued and on course content and time taken for nutrition topic during 3 refresher trainings. Three focus group discussions were conducted with PLWHA to find out the services and what they thought about the services they got from the trained volunteers. The focus groups discussions helped give a better understanding of the situation when compared to the interviews (Floyd,Jr 1986; Moser, C.A and Calton, G 1979) The focus

group discussion guide used on PLWHA and the questionnaire answered by volunteers had questions on services offered by volunteers and how often they met clients. The interviewed volunteers per division were as follows; Shinyalu division 49, Municipality division 44, Kabras 20, Lurambi and Ikolomani 16 each and Ileho 1. None were in Navakholo.

The questionnaire: was developed, pre-tested and improved on before being administered. The questionnaire was relatively easy to administer and had the same question for all respondents. The method used was personal interviews. Questions were based on the manual for nutritional care and support for people living with HIV/AIDS (WHO/FAO, 2002) and the Home Care Manual (NASCOP, 2002b). The questionnaire included the following sections:

1. Demographic profile of the volunteers

The section had the name, age, gender, level of education, occupation and marital status. The level of education was categorized into four. The first was non for those who had never gone to school, second was primary for all those who attended primary school for any number of years. The third category was secondary which included all people who ever went to secondary school and the fourth category had all people who have had post secondary education. The section also had questions on when they were trained in HBC, who trained them and for how long.

2. The knowledge section

This section sought to elucidate the knowledge of trained volunteers on HIV and breast feeding, nutritional needs of PLWHA and nutritional related complications in HIV/AIDS. Responses to knowledge questions were given scores. Each aspect was scored to gauge knowledge per aspect then finally an aggregate score for all sections added up and converted to a percentages. The maximum score corresponding to 100% was 62 for all aspects of nutrition knowledge. The maximum 100% was divided into quartiles. All scores above 75% (4th quartile) implied adequate knowledge, 50%-75% (3rd quartile) moderate, 49% and below (2nd and 1st quartile) inadequate knowledge. Scoring methods have been used by others to assess nutrition knowledge, attitude and practice with different cut off points used. The Centre for Disease Control and prevention (C.D.C) has a handbook on the scoring method (C.D.C, 2003). It has also been applied in other studies Mirie (1989), in grading mothers after assessing their knowledge in nutrition, Mackenzie (1999), on health workers' knowledge in growth monitoring and Nyankuru (2002), in assessing knowledge, attitude and practice of trained community resource persons. The questions that specifically related to nutrition and HIV carried more marks, a correct response was awarded two points except for those where the answer was yes or no. The weighting was different because the interest was in nutrition knowledge, mentioning a correct response was more important than a yes or no response which one could guess. These included questions on HIV and breastfeeding, nutrition related diseases and their control. Those on general knowledge like the cause and signs of HIV/AIDS had less marks, a correct response was awarded one point. The

number of responses per section depended on the what is given in manual used for training and the importance of the aspect in relation PLWHA.

Assessing knowledge on cause of HIV/AIDS

All the volunteers were expected to correctly mention the causes of HIV/AIDS. This question had maximum score of one point for the correct response. The indicator used for assessing this was virus. 1 score = Mentioned, 0 score = Not mentioned

Assessing knowledge on transmission methods

All the volunteers were expected to correctly mention the three transmission methods of HIV/AIDS. The question had a maximum score of three points. The indicators used for assessing these were:

1. Unprotected sexual intercourse with an infected person
2. Contact with infected blood and other body fluids
3. From an infected mother to child

1 score = Mentioned, 0 score = Not mentioned

Assessing knowledge on signs of AIDS in adults

The volunteers were expected to name at least three signs of AIDS in adults. The question had a maximum score of three points. The indicators used for assessing these were:

1. Unexplained 10% weight loss in a month
2. Persistent diarrhoea for over a month

3. Fever for over a month
4. Cough for over a month
5. Recurrent herpes zoster
6. Thrush of the mouth
7. Generalised enlarged lymph nodes
8. Disseminated progressive herpes simplex
9. Generalised pruritic dermatitis

Assessing knowledge on signs of AIDS in children

All the respondents were expected to correctly mention at least three signs of AIDS in children. The maximum score was three points. The indicators used to assess these were:

1. Weight loss or abnormally slow growth
2. Chronic diarrhoea for over a month
3. Fever for over a month
4. Recurrent common infections
5. Generalised enlarged lymph nodes
6. Generalised pruritic dermatitis
7. Thrush of the mouth
8. Cough for over a month
9. Confirmed maternal HIV infection.

Assessing knowledge on symptoms of HIV/AIDS that affect nutrition of PLWHA.

All the HBC volunteers interviewed were expected to correctly name any four of the symptoms of HIV/AIDS that affect the nutrition of PLWHA. For every correct response, two points were given and zero for incorrect responses. The maximum score for this was eight points. The indicators used for scoring were:

1. Diarrhoea
2. Oral thrush
3. Loss of appetite
4. Nausea and vomiting
5. Fever

Assessing knowledge on options HIV positive mothers have to breast feeding

All the respondents were expected to give at least three options an HIV positive mother has to feed her baby so as to avoid mother to child transmission. Each correctly mentioned option was given two points, while a zero score was given for incorrect responses. The correct responses expected were:

1. Exclusive breast feeding then stop and introduce appropriate foods
2. No breast feeding give other appropriate milk substitutes if acceptable, feasible, affordable, sustainable and safe.
3. Pastuerise mothers milk and feed the baby
4. Wet nursing

Assessing knowledge on special nutritional needs of PLWHA

All respondents were asked if sick people have special nutritional needs. If they said yes they got one point if they said no they scored zero. The question had a maximum score of one point.

Assessing knowledge on special energy needs of PLWHA

The respondents were asked about the special energy needs of PLWHA. A correct response was given two points while an incorrect response was given a zero score. The question had a maximum score of four points. The correct response was that energy needs increased for HIV infected people, those with symptoms requiring more energy than those without symptoms.

Assessing knowledge on important micronutrients for PLWHA

All respondents were to correctly name three important vitamins for PLWHA. Every correct response was given two points while an incorrect response got zero. The maximum score attainable was six points. The indicators used for scoring their knowledge was:

1. Vitamin A
2. Vitamin B
3. Vitamin C
4. Vitamin E

All respondents were asked to correctly name three important minerals for PLWHA. A correct response was given two points while an incorrect one got zero. The maximum

score for this was six points. The indicators used to score their knowledge about minerals were:

1. Zinc
2. Selenium
3. Iron

Assessing knowledge on relationship of nutrition and HIV/AIDS

The respondents were expected to say if there is a relationship between HIV and nutrition then explain the relationship. Those who said there was a relationship got one point. If they correctly explained the relationship they got two points. The correct response was that good nutrition boosts immunity thus those who have good nutrition stay healthier for long.

Assessing knowledge on measures of food safety and hygiene

All the respondents were expected to correctly name four advices they give in relation to food safety and hygiene. For every correct response given, two points were awarded and none for incorrect responses. The maximum score attainable was eight points. The indicators used for scoring knowledge about food safety and hygiene were:

1. Clean/ wash food before cooking
2. Use clean utensils
3. Person cooking to be clean
4. Food should be well cooked or reheated thoroughly
5. Environment should be clean

6. Use clean water to cook and drink
7. Patient should be clean before eating
8. Give fresh food
9. Cover/ protect food

Assessing knowledge on nutrition advice for diarrhoea

All the respondents were asked to correctly mention four nutrition advices for diarrhoea. Those who correctly mentioned the advices got two points for each correct advice and zero score for incorrect responses. The maximum score was eight points. The indicators used to assess their knowledge were:

1. Use a lot of fluids
2. Eat soft foods
3. Eat small frequent meals
4. Eat fermented foods
5. Eat warm food, rather than very hot or very cold
6. Eat foods rich in soluble fibre
7. Reducing fats
8. Avoiding gas producing foods
9. Avoiding acidic fruits and vegetables

Assessing knowledge on nutrition advice for oral thrush

All the volunteers interviewed were expected to correctly mention three nutrition advices for oral thrush. Each correctly mentioned advice was awarded two points and zero score

for incorrect responses. The maximum score was six points. The correct responses used for scoring their knowledge were:

1. Use soft foods
2. Avoid sweet foods
3. Eat warm foods
4. Avoid very spicy, salty, acidic or sour foods

Assessing knowledge on nutrition advice for PLWHA who are wasted

The volunteers interviewed were expected to mention two nutrition advices for PLWHA who are wasted. Correctly mentioned advice was awarded two points while incorrect responses were scored zero. The maximum score was four points. The responses used for scoring their knowledge were:

1. Eat balanced diet
2. Eat frequent meals
3. Eat protein rich diet
4. Eat energy dense foods

Assessing knowledge on nutrition advice for PLWHA who are not wasted

All the volunteers interviewed were expected to mention two correct nutrition advices for PLWHA who are not wasted. A correct response was awarded two points while an incorrect response scored zero. The maximum score was four points. Responses used to score their knowledge were:

1. Eat balanced diet

2. Eat frequent meals

3. Eat energy dense foods

3. Importance and adequacy of training

The section dealt with how the volunteers felt about the time allocated to nutrition in the trainings and the adequacy of the content in relation to carrying out nutrition care and support. The respondents were asked if the training enabled them to answer most of the nutrition issues raised by clients. They were also asked if after training they felt competent in handling nutrition concerns of PLWHA. It also dealt with the areas of nutrition they felt were not adequately covered in the training.

4. Practice

The number of clients served in a month and the interval between visits to clients was established. The volunteers were asked how they decided their visits to clients. The volunteers interviewed also listed services they offered to PLWHA. By listing services given it was evident whether nutrition was covered or not. Advice given for common problems of PLWHA like oral thrush, diarrhoea and losing weight were asked. It was to find out whether their practices were good.

5. Challenges

The section had questions on the factors that make it difficult to visit and advise clients.

The volunteers ranked the challenges. The challenges were then weighted as below:

Rank	Weight
1	5
2	4
3	3
4	2
5	1

The weights were multiplied by the number of times the challenge was mentioned and the one with the highest weight was ranked first.

6. Coping strategies

In this section the volunteers were asked to name the coping strategies that they used in dealing with challenges in their work. The coping strategies were the measures taken by the volunteers to ensure that home based care continued despite the challenges faced.

Focus Group Discussion Guide

Focus group discussion were done to corroborate the information from the interviews on the knowledge and practice of the volunteers. Focus group discussions were carried out among people with a common interest. The group discussion had a facilitator and a recorder. The facilitator guided the group discussions using a discussion guide while the recorder recoded the discussion. A focus group discussion guide with eight questions

was used to verify information collected in the questionnaires from the volunteers. Focus group discussions produced a lot of information quickly. They were flexible than structured questionnaires. They were used to discover attitudes and opinions not revealed in structured questionnaires. The team facilitating the FGD was composed of two persons the principal investigator and one research assistant who recorded the discussion. The participants were encouraged to discuss freely and spontaneously about the topic in question. Open-ended questions were used and additional ones incorporated based on the responses (Appendix 2).

Observation

Observation provided non-verbal clues to the situation. Observations were made on the condition of the PLWHA, their participation in discussions and how they related to each other. The FGD participants were observed when they came for the focus group discussions. Observations of the time taken on nutrition and the content during 3 refresher courses was noted. Supplies given to Pathfinder volunteers were noted (Appendix 3).

3.6.2 Ethical and human rights considerations

The GOK gave a research permit for the study. The NGOs that had trained the HBC volunteers were informed about the research and requested to assist in identifying the trained volunteers. The study was non invasive but the respondents participated voluntarily and the information given was treated as confidential.

3.6.3 Research assistants

Two research assistants were recruited. They had to have at least completed secondary school. Experienced field assistants who had carried out surveys in the past were preferred. The assistants recruited were officers from the ministry of agriculture. They would easily carry out interviews because they already had good interpersonal skills and had previously carried out surveys.

A three day training conducted by the principal investigator was carried out. The assistants were briefed on study objectives, the study sample and the researcher's expectations of their work. Administration of questionnaire, interviewing technique and interpersonal skills were covered. The assistants were also trained on principles of field ethics like confidentiality, right to privacy, information on why the study was being done and right to decline to be interviewed or answer certain questions. Administration of the questionnaire from question to question and how to record was practised (See appendix 3). Supportive supervision by the principal researcher was used as an opportunity for continued enhancement of capacity for data collection. The supervision brought out issues that needed to be improved.

3.6.4 Pre-testing of data collection tools

Pre-testing involved testing the tools in the field before they could be multiplied and used. This helped to find out if the questionnaire and focus group discussion guide were well understood and conveyed what they were intended to. After the training of the research assistants, the tools were pre-tested in the field. The pre-testing provided a

hands-on learning for the research assistants. They were able to ask for clarification before setting off for the real work. It also gave them confidence and helped them master the questionnaire. This was a crucial step that led to the questionnaire being improved on before multiplication.

The research assistants worked together with the principal researcher in pre-testing. Ten volunteers were selected and interviewed using the questionnaire and one focus group discussion done. The volunteers chosen were representative of the rest. Out of the ten volunteers two were from Joy, one from GROOTS, four from Pathfinder, and three from faith based organisations. Necessary corrections were made on the questionnaire, two questions were added while others were rephrased to give a clearer meaning. When the focus group discussion guide was pre-tested it was realized that two questions were similar and one was removed. The questionnaires used for pre- testing were analysed before implementing the rest of the questionnaires to verify validity but were not included in those finally analysed.

3.6.5 Data collection process

The ministry of health gave Pathfinder as the organization dealing with HBC in the district. The Pathfinder office then gave names of the field contacts/ supervisors who supervise the volunteers in the field. The field contacts identified the other organizations doing HBC in the areas where they work. The contacts together with the volunteers gave dates of meeting in central places. Some of the venues were homes while others were

churches or group premises. This eased the work since it would have been difficult tracing them around the district.

The three FGDs that were conducted among PLWHA were organized by the volunteers and the principal researcher. One of the FGDs was done on a day the members regularly met in a central place. It was difficult to do FGDs in areas where the PLWHA had not formed post test clubs, did not usually meet and therefore did not know each other. This was particularly difficult in the areas far from the town where stigma was still a big problem.

3.6.6 Data management

The data from the questionnaires was entered into the computer and analysed. The computer package SPSS soft ware was used. Data analysis was by interpreting and assessing the information and results. Descriptive analysis involved statistics like mean, frequencies and tables. Statistical tests that have been applied include Chi square, to compare proportions and determine differences between large quantitative data sets. (Daniel,W, 1991 and 1997) Correlation analysis to express the type of relationship between two variables like age and knowledge. Linear regression analysis to determine the strength of the relationship between two continuous variables like age and percentage marks. Multivariate analysis determine association between two or more sets of quantitative data like education level, the trainer, age, number of people client and categorical data, the level of nutrition knowledge.

Notes from the FGDs were transcribed and text analysis done highlighting major themes, differences and similarities from the discussions and descriptive analysis was made. Observations made were also recorded and used to get further clarification of issues in the FGDs.

3.6.7 Data quality control

The data collection tools were well designed, pre-tested and modified. The field assistants who were diploma holders and had previously carried out surveys were trained adequately for the survey. The respondents were informed about the objectives of the study so as to obtain reliable information. The assistants were closely supervised in the field and the completeness of questionnaires checked to ensure they were properly filled. Each questionnaire was reviewed at the end of the day to confirm the validity. The principal researcher reviewed all questions in the questionnaire. Coded questions were checked to ensure they were properly circled. Answers for open ended questions had to be legible. Any information that did not make sense was cross checked by the principal researcher.

The notes from focus group discussions were written down legibly. The researcher and recorder went through the notes. This was done immediately after the interview when both could remember the discussion. What had been missed out by the recorder was added by the researcher. These notes were kept safely.

During data entry, cleaning was done to rectify errors by running frequencies, cross tabulations and exploratory methods to avoid possible mistakes and obtain quality data. During the analysis some data had to be further categorized for the analysis to be valid. There was a very small number of volunteers (5) with adequate nutrition knowledge one from Pathfinder, two from Joy, two from other trainers. The adequate category had to be put together with the moderate one. Two categories of knowledge were thus formed; inadequate and moderate and adequate. The categories of trainers were collapsed into four, Pathfinder, Joy, GROOTS and others. The others category put together trainers with less than 10 volunteers each to make statistical tests like Chi square possible.

CHAPTER 4

RESULTS

The sample population comprised of 146 trained home-based care volunteers for PLWHA in Kakamega district, 27 (6 men, 21 women) PLWHA participated in three FGDs. The ages of the FGD participants ranged from 20 to 50 years.

4.1 Demographic characteristics of the HBC volunteers

Table 4.1 shows the demographic characteristics of the HBC volunteers interviewed.

These include gender, marital status, education level and occupation.

Table 4.1: Demographic characteristics of HBC Volunteers

Characteristic	N=146	%
Gender		
Male	37	25.3
Female	109	74.7
Marital status		
Married	111	76
Single	22	15.1
widowed	13	8.9
Religion		
Christian	145	99.3
Muslim	1	.7
Education level		
None	5	3.4
Primary	50	34.4
Secondary	84	57.5
Post secondary	7	4.8
Current main occupation		
Formal employment	10	6.8
Self employment	31	21.2
Volunteer worker	29	19.9
Farmer	73	50.0
Housewife	3	2.1

The age of the respondents ranged from 18 to 74 years with a mean of 39.9, median 40, mode 32 (SD= 12.17). The age distribution is shown in figure 4.1. The majority (59.6%) of the respondents were aged 36-55 years.

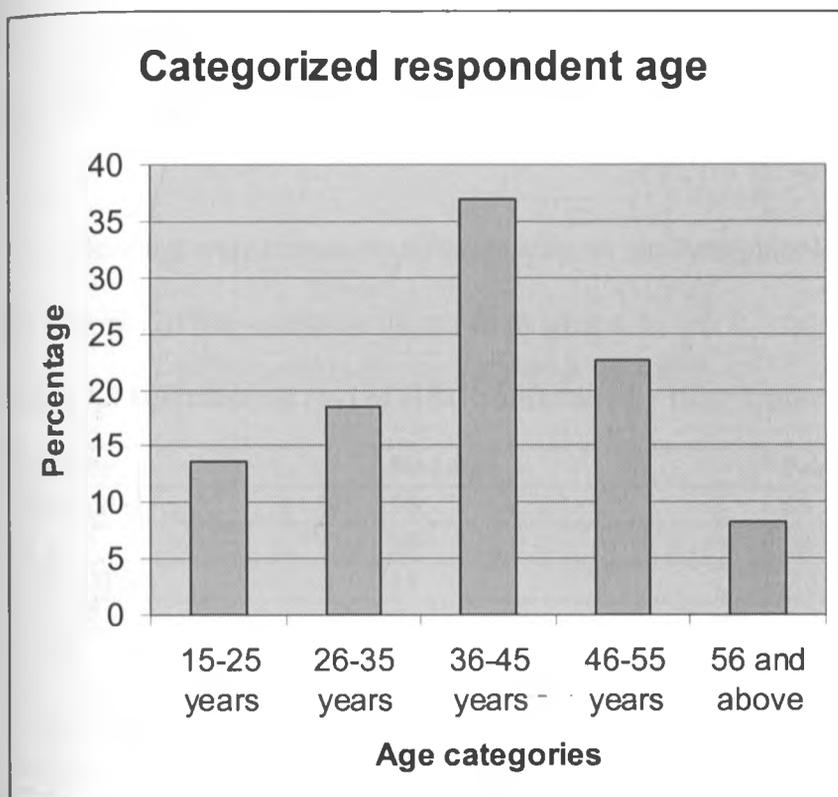


Figure 4.1 Age distribution (%) of study respondents

4.2 Volunteer Involvement and trainings in HBC

Volunteers became involved in HBC for PLWHA in different ways. Over half (54.8%) were selected by the community, 24.7% decided by themselves, 3.4% were introduced by other volunteers working in the community while 17.1% decided as a group.

The trainings had been going on from 2000 to 2005 (see 3.1.1). Out of all the volunteers, 60% have had refresher trainings. The period of the original training varied as shown in table 4.2

Table 4.2: Distribution of respondents by duration of training

Duration of training	N=146	Percent
2 days	13	8.9
3 days	30	20.5
7 days	8	5.5
21 days	95	64.4

The volunteers were trained by different trainers but Pathfinder is the one that had trained the majority of the volunteers as shown in table 4.3

Table 4.3 Distribution (%) of HBC volunteers by their trainers

Trainer	N=146	Percent
Pathfinder	96	65.8
Joy	20	13.7
GROOTS	11	7.5
NACC	9	6.2
Swak	1	.7
Church	4	2.7
I choose life	1	.7
University of Nairobi	1	.7
Ministry of Health	2	1.4
National council of women in Kenya	1	.7

4.3 Level of knowledge

The volunteers were assessed on the following attributes of knowledge, transmission of HIV, signs of the disease, symptoms that affect nutrition, and options in breastfeeding. Others were nutritional needs for PLWHA, food safety and hygiene and knowledge on common problems that affect PLWHA diarrhoea and oral thrush.

Modes of transmission of HIV

On general knowledge about the transmission of the HIV, 97.9% (143) said it is transmitted sexually, 89.7 (131) mentioned transmission through contact with blood or other body fluids while 46.6% (68) mentioned transmission from mother to child. Out of all those interviewed 2.7% did not know any of the transmission modes, 11% mentioned one, 43.2% mentioned two and 43.2% mentioned all the three modes of transmission.

Table 4.4 shows the distribution of HBC volunteers by level of knowledge.

Table 4.4 Distribution of HBC volunteers by level of knowledge on transmission

Knowledge	N=146	Percent
Inadequate	20	13.7
Moderate	63	43.2
Adequate	63	43.2

Signs of AIDS in adults

The signs most frequently mentioned were weight loss 67.8% (99), generalized pruritic dermatitis 55.5% (81) while persistent diarrhoea and cough were each mentioned by 43.8% (64) of the volunteers. Out of the volunteers 4.8% mentioned one sign, 30.1% two signs while 65.1% mentioned three signs as required. Their level of knowledge was as in table 4.5.

Table 4.5: Distribution of respondents by level of knowledge on signs of AIDS in adults

Knowledge	N=146	Percent
Inadequate	7	4.8
Moderate	44	30.1
Adequate	95	65.1

Signs of AIDS in children

The most mentioned signs by respondents were weight loss or abnormally slow growth (82.2%), diarrhoea (30.1%), generalized pruritic dermatitis (30.1%), while 24.7% mentioned cough for over a month. Out of all those interviewed (146), 4.8% did not mention any correct answer, 16.4% mentioned only one, 42.5% mentioned two and 36.3% mentioned three correct signs of AIDS in children. Table 4.6 shows their level of knowledge on signs of AIDS in children.

Table 4.6: Distribution of volunteers by level of knowledge on signs of AIDS in children

Knowledge	N=146	Percent
Inadequate	31	21.2
Moderate	62	42.5
Adequate	53	36.3

Symptoms of HIV/AIDS that affect nutrition of PLWHA

The volunteers were asked to mention any four symptoms of HIV/AIDS that affect the nutrition of PLWHA. About two thirds (65.1%) of the respondents mentioned loss of appetite, 54.1% (79) mentioned diarrhoea, 45.2% (66) mentioned nausea and vomiting, 35.6% (52) mentioned oral thrush while only 11.6% (17) mentioned fever.

Out of all the volunteers 3.4% (5) did not mention any symptom that affects nutrition, 24% (35) mentioned one symptom, 37% (54) mentioned two, 30.8% (45) mentioned

three while only 4.8% (7) mentioned four symptoms. Table 4.7 shows the distribution of respondents level of knowledge on HIV/AIDS symptoms that affect nutrition.

Table 4.7: Distribution of respondents by level of knowledge on symptoms of HIV/AIDS that affect nutrition of PLWHA

Knowledge	N=146	Percentage
Inadequate	94	64.4
Moderate	45	30.8
Adequate	7	4.8

Knowledge on infant feeding options for HIV/AIDS mothers on breast feeding

The volunteers were required to give three options an HIV positive mother has in breastfeeding. The majority of the volunteers 77.4% (113) mentioned giving breast milk substitutes, 64.4% (94) mentioned exclusive breastfeeding then cease once other foods are introduced and 2.4% (4) mentioned pasteurising mothers milk. Out of all the volunteers 4.1% (6) did not mention any option, 52.1% (76) mentioned one option while 43.8% (64) mentioned two options. None of the respondents mentioned three options.

Table 4.8 shows the distribution of volunteers level of knowledge on options a mother has in feeding the child to avoid mother to child infection through breastfeeding.

Table 4.8: Distribution of volunteers by level of knowledge on infant feeding options for HIV positive mothers

Knowledge	N=146	Percent
Inadequate	82	56.2
Moderate	64	43.8
Adequate	0	0

Nutritional needs of the sick

Out of all the volunteers interviewed, 99.3% (145) said that sick people have special nutritional needs while only one said the sick do not have special nutritional needs. None of the volunteers 100% (146) gave a correct response about the energy needs of PLWHA.

Level of Knowledge on important Vitamins A, B, C, E for PLWHA

The respondents were asked to mention three vitamins important for PLWHA. Most of the respondents 47.9%(70) mentioned vitamin A, 30.1%(44) vitamin B and 29.5%(43) mentioned vitamin C. Out of all the respondents 46.6% did not state any correct answer, 16.4% (24) stated one, 27.4% (40) stated two correct answers while only 9.6%(14) stated three correct answers. The distribution of respondents by level of knowledge on important vitamins for PLWHA is given in table 4.9

Table 4.9: Distribution of respondents by level of knowledge on important vitamins (A, B, C, E) for PLWHA

Knowledge	N=146	Percent
Inadequate	92	63
Moderate	40	27.4
Adequate	14	9.6

Level of knowledge on important minerals zinc, selenium, iron important for PLWHA

Respondents were asked to name three minerals (zinc, selenium, iron) that are very important for PLWHA. The majority of the respondents (78.8%) did not mention any correct mineral, 17.1% (25) mentioned one, 4.1% (6) mentioned two but none of them mentioned three correct minerals. Only 17.1% (25) mentioned iron, 7.5% (11) mentioned zinc and 3% (3) mentioned selenium. The majority 95.9% (140) had inadequate knowledge, 4.1% (96) had moderate knowledge while none had adequate knowledge on minerals.

Relationship between HIV/AIDS and nutrition

Majority of the respondents (97.3%) said that there was a relationship between HIV/AIDS and nutrition while only 2.7% (4) said there was no relationship. Out of those who said there is a relationship 90.4% (132) answered correctly that nutrition helps boost immunity and those who have good nutrition stay healthy for longer periods.

Level of knowledge Knowledge on food safety and hygiene

The respondents were to state any four advices they give in relation to food safety and hygiene. Several correct advices were given as in table 4.10

Table 4.10: Distribution of respondents by the advice they gave on food safety and hygiene

Advice	N= 146	%
Clean/ wash the food before eating /cooking	83	56.8
Use clean utensils	72	49.3
Person cooking should be clean	63	43.2
The food should be well cooked	51	34.9
Environment should be clean	46	31.5
Cover/ protect food	45	30.8
Use clean water to cook and drink	17	11.6
Patience should be clean before eating	16	11
Give fresh food	16	11

Among the respondents, 2.1% (3) did not state any correct answer, 11%(16) stated only one correct answer, 26% (38) stated two correct answers, 30.3% (45) stated three correct answers and 30.1% (44) stated four correct answers. The volunteers level of knowledge was distributed as follows: 13.1% (19) had inadequate knowledge, 26% (38) with moderate knowledge while the majority 60.9% (89) had adequate knowledge on food safety and hygiene.

Level of knowledge on diarrhoea

Respondents were asked to mention four correct advices they give for diarrhoea. The majority of the respondents 78.1% (114) mentioned the use of fluids, 24% (35) mentioned eating soft foods, 6.8%(10) mentioned reduction of fat, 4.8% (7) mentioned eating frequently, 2.7% (4) mentioned use of fermented food while 2.1% (3) mentioned use of foods rich in soluble fibre as an advice for diarrhoea. On the level of knowledge 13% (19) did not give any correct advice, 52.7% stated one correct answer, 30.8% (45) gave two correct answers, 2.7% (4) stated three correct answers while only 0.7% (1) stated four correct answers.

Table 4.11: Distribution of respondents by level of knowledge on nutrition advice for diarrhoea

Knowledge	N=146	Percent
Inadequate	96	67.7
Moderate	45	30.8
Adequate	5	3.4

Nutrition knowledge on oral thrush

The respondents mentioned various correct advices they gave for oral thrush. These were distributed as shown in table 4.12.

Table 4.12: Distribution of respondents by advice for oral thrush mentioned by respondents

Advice	N=146	%
Eating soft food	62	42.5
Avoiding spicy/salty/acidic foods	33	22.6
Drinking fluids	12	8.2
Eating cool foods	4	2.7
Avoiding sugar	2	1.4

Out of the 146 respondents, 40.4% (59) did not state any correct answer, 45.9% (67) stated one correct answer, 19% (13) stated two correct answers while only 0.7% (1) was able to state three correct answers. Only .7% (1) had adequate knowledge, 58.9% (86) had moderate knowledge and 40.4% (59) had inadequate knowledge.

Knowledge on nutrition advice given to wasted and non wasted PLWHA

For a wasted patient 44.5% (65) mentioned the use of a balanced diet, 29.5% (43) stated diet rich in protein and 6.2%(9) advice frequent meals. Of the respondents, 26% (38) did not state any correct response, 70.5% (103) stated one while 3.4% (5) stated two correct advices as asked for a wasted person. Table 4.13 shows their level of knowledge.

Table 4.13: Distribution of respondents by level of knowledge on nutrition advice given to PLWHA who are wasted

Knowledge	N=146	percent
Inadequate	38	26
Moderate	103	70.5
Adequate	5	3.4

For a PLWHA who had no sign of wasting, there were two advices mentioned by respondents, balanced diet 67.8% (99) and frequent eating while 2.1% (3). Out of the 146 respondents 28.8% (42) did not state any correct advice, 70.5% (103) stated one correct advice while only 0.7% (1) stated two correct advices for a person who is not wasted. The distribution of their level of knowledge is shown in table 4.14.

Table 4.14: Distribution of respondents by level of knowledge on nutrition advice given to PLWHA who are not wasted

Knowledge	N=146	Percent
Inadequate	42	28.8
moderate	103	70.5
Adequate	1	.7

Importance and adequacy of training

Out of the 146 volunteers interviewed, 99.9% thought the nutrition component was important in HBC while only 0.7% (1) thought it was not. On the adequacy of the training in relation to nutrition, 45.9% (67) said it was adequate while 54.1% (79) said it was inadequate. All who found it inadequate said it was the whole area of nutrition that was inadequately covered, not specific topics.

Scores from all attributes of nutrition knowledge were aggregated. The aggregate points from all attributes of nutrition knowledge were 62 points while that from general

knowledge were 9. The overall grades for nutrition knowledge were grouped as earlier explained in 3.6.1 All the respondents who got above 75%(4th quartile) from the nutrition section had adequate knowledge, between 75% and 50% (3rd quartile) moderate while those who got 49% and below(2nd and 1st quartile) had inadequate knowledge. Out of the 146 respondents, 3.4% (5) had adequate knowledge, 59.6% (87) had moderate and 37% (54) had inadequate knowledge as shown in figure 4.2. The mean score was 52.2 (SD = 9.7). The hypothesis that nutrition knowledge of the volunteers is adequate is not supported by the findings and therefore is rejected.

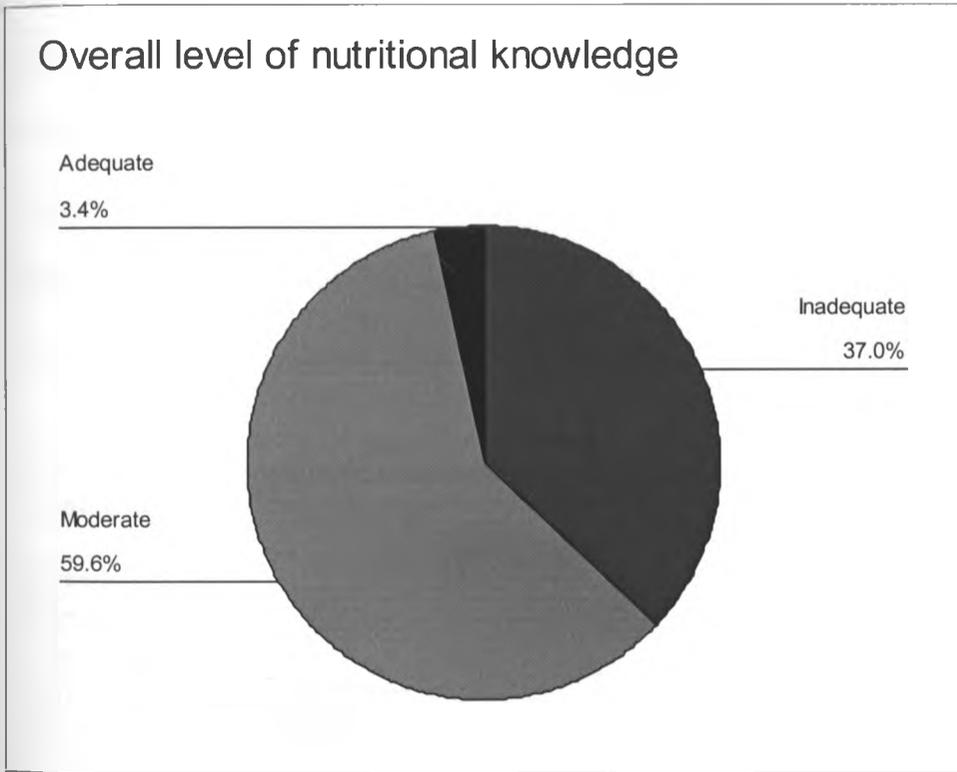


Figure 4.2 Distribution of respondents by overall nutrition knowledge

4.4 Practice of HBC Volunteers

There were various services offered to PLWHA by the volunteers. They trained the clients and care givers on environmental and personal hygiene. The majority of volunteers 73.3% (107) offered this service. Counseling was done for the infected and affected in the community. They counseled the affected so that they could accept and look after the infected and offered prayers and spiritual care. Nursing care skills were taught and also nursing care given to PLWHA. Nutrition advice was given to the infected and care givers. Care givers were trained at household level. Training care givers aims at ensuring that the PLWHA are better cared for. This also gave more time to volunteers to care for those who were abandoned. Income generating activities were taught to PLWHA. They carried them out individually or as groups. These activities were started to boost the PLWHA financially so that they met some of their increased nutritional and medical requirements. Referrals were done for PLWHA who required medical attention. Table 4.15 shows services offered.

Table 4.15: Distribution of respondents by Services offered to PLWHA by volunteers.

Service	N=146	%
Environmental/personal hygiene	107	73.3
Counseling	87	59.6
Nutrition advice	80	54.8
Training care givers at households	49	33.6
Nursing skills	45	30.8
Referrals	40	27.4
Income generating activities	32	21.9
Prayers and spiritual	30	20.5

The number of clients visited regularly in a month varied among the volunteers. The number ranged from none to 120. Those who visited very many clients were the

supervisors from Pathfinder visiting the post test clubs. Three respondents did not answer the question. Table 4.16 gives the distribution of respondents by the number of clients visited per month.

Table 4.16: Distribution of volunteers by the number of clients visited per month.

Number PLWHA	N=146	Percent
-	3	2.1
None	3	2.1
1-5	49	33.6
6-10	34	23.3
11-15	22	15.1
16-20	19	13.0
Above 21	16	11.0

There were several ways in which the volunteers decided on who to visit. The majority 89.7% (131) followed schedules, 5.5% (8) only went when they were requested, 1.4% (2) visited those who needed more care while 3.4% (5) did not have specific ways of deciding. When the patient was too ill at home 90.4% (132) advised referral, 6.8% (10) continued helping at home while 2.7% (4) did not give an answer.

Volunteers' regularity of seeing their clients differed. Out of the 146 volunteers, the majority 59%(86) visited clients every week, 21%(31) visited after more than a week to two weeks, 9%(13) after more than two weeks to three weeks while the remaining 11%(16) visit after more than three weeks. Figure 4.3 depicts the distribution of volunteers by the time interval in weeks they took before visiting a client.

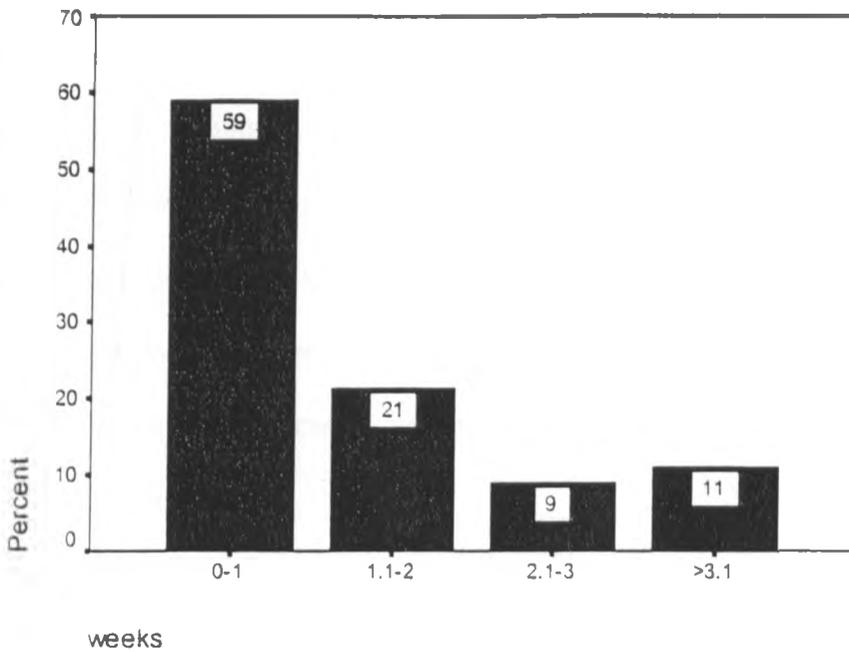


Figure 4.3 Distribution of volunteers by the time interval in weeks before they visit a client

4.5 Challenges

There were many challenges that the volunteers faced as they carried out their work. The volunteers ranked the challenges they encountered, which were weighted as described in 3.6.1(5). They were ranked as shown in table 4.17. The highest ranking challenge was high expectations from PLWHA. They expected the volunteers to provide food, drugs, look after orphans, help pay medical bills and attend to PLWHA whenever they wanted. Poverty was ranked second. The poverty of PLWHA included inability to feed themselves and families, as well as inability to pay for medical tests and pay for drugs and treatment. The logistics for volunteers included transport to reach clients and provision of supplies (soap, gloves, disinfectants, cotton wool). Culture affected the

beliefs about the disease. Some cultural practices like wife inheritance were still practiced. Culture created a communication barrier since young people could not educate the older ones on HIV/AIDS. The long distances to medical facilities made it difficult for the clients to readily go for medical care after referrals were made by the volunteers. This led to deterioration in the health of clients as logistics to get to the medical facilities were sought. Few PLWHA also go for voluntary counseling and testing because of the distance to the facilities. The safety challenge included the fear of rape by clients and police harassment in areas with illicit brews.

Table 4.17: Challenges faced by volunteers

Challenge and rank	1	2	3	4	5	
	N=146					Weight
1. High expectations from community and PLWHA for handouts and looking after orphans	44	33	18	4	1	415
2. Poverty of PLWHA	37	14	15	9	1	305
3. Uncooperative patient	18	15	9	2	0	181
4. Logistics for volunteers to work	12	13	14	5	1	165
5. Stigma and rejection of PLWHA	8	15	11	1	2	137
6. Long distance to medical facilities	4	17	6	1	1	109
7. Culture	11	7	5	4	2	108
8. Lack of knowledge in nutrition, illnesses and drugs	2	4	3	1	2	39
9. Safety of volunteers	1	1	3	3	1	25

4.6 Coping strategies by volunteers

There were several coping strategies used by the volunteers in order to overcome the challenges. These are shown in table 4.18. The volunteers used the strategies to enable them overcome challenges. Letting clients know what to expect was very useful so that the clients did not have very high expectation from the volunteers. Asking the community to help and starting income generating activities were more sustainable than always giving what they could.

Table 4.18: Distribution of volunteers by the coping strategies they used

Strategy	N =146	%
Giving what you can	90	61.6
Asking the community to help	66	45.2
Counseling family members and client	51	34.9
Tell them what you offer right from the beginning	25	17.1
Ask GOK administration to help	20	13.7
Starting income generating activities	17	11.6
Carry own gloves , soap or improvise	16	11

4.7 Factors Associated with Nutrition Knowledge and Practices

There were associations between some variables. Education level, length of training, trainer and refresher courses were associated with nutrition level of the volunteers. A multivariate analysis revealed that those that had a significance were education level ($p > 0.02$), length of training ($p > 0.04$), refresher courses ($p = 0.04$). The age of the respondent was negatively correlated with nutrition knowledge and was significantly associated with nutrition knowledge ($p > 0.01$). Factors associated with nutrition knowledge and practices are shown in table 4.19

Table 4.19 Factors associated with nutrition knowledge of volunteers

Volunteer characteristic	Level of knowledge	
	Inadequate	Moderate and adequate
Level of education		
None	2	3
Primary	25	25
Secondary	25	59
Post secondary	2	5
Length of training		
2 days	10	3
3 days	10	20
7 days	3	5
21 days	31	62
Trainer		
Pathfinder	32	64
Joy	8	12
GROOTS	9	2
Others	5	14
Refresher courses		
Attended	29	62
Not attended	25	30

Gender and services provided

The sex of the respondents affected services given. Females gave more nutrition education to their clients than males. Out of 37 male volunteers only 11 gave nutrition education while 26 did not. The majority of the 109 female respondents (69) gave nutrition education while 40 did not. This fact was statistically significant. (chi-square =12.570, p value 0.000)The rest of the services did not have a statistically significant association with gender.

Trainer and the services offered

Some services were offered more by volunteers from one trainer compared to others while others were equally offered by all volunteers regardless of the trainer. As a result some services had statistically significant differences among the trainers while others did not.

The training of care givers differed among volunteers trained by the different trainers. Among Pathfinder trained volunteers, 44.3% trained care givers while only 9.1% of those trained by GROOTS trained care givers. There was a statistical significance in the provision of volunteers training care givers depending on volunteer trainer (Chi-square=15.57, p=0.002)

There was a difference in the proportion of volunteers offering hygiene services depending on the trainers. Among those trained by Pathfinder 83.5% offer it, 70% of those that were trained by Joy while only 27.3% of those trained by GROOTS did (Chi-square =22.17, p = 0.000)

Offering of prayers and spiritual care had a statistical significant among the trainers (Chi-square 59.9, p value = .000). The majority of volunteers (83%) trained by trainers categorised as others offered more spiritual care followed by those trained by GROOTS (45.5%), Joy (29%) and Pathfinder (6.2%) in that order.

Nutrition education was one of those services that was offered by volunteers irrespective of the trainers as there was no statistical significance among trainers (Chi-square 7.523, $p > 0.05$). The others were counselling (p value > 0.4), nursing care (p value > 0.1) income generating activities (p value > 0.2) and referrals (p value > 0.3)

Nutrition knowledge and practice

The nutrition knowledge was not significantly associated with the number of clients seen (Chi square $p > 0.3$). The knowledge was not also associated with the duration of time (in weeks) one took before seeing a client. (Chi- square $p > 0.5$).The trainer was associated with the number of clients a volunteer served per month. There was a statistical significance between trainers in the number of clients seen ($P=0.00$) Those trained by Pathfinder saw more PLWHA and those by GROOTS and Joy saw few. The hypothesis that nutrition knowledge is not associated with practice is supported by this results therefore accepted.

Results from qualitative data

The FGDs with PLWHA revealed that the PLWHA knew that there were trained HBC volunteers in the community. They interacted with them occasionally. Their role was to take care of the sick and sensitize the community on HIV/AIDS. The services and activities the volunteers carried out in the community were given as follows

Counseling

Referrals

Group formation

Starting income generating projects
Giving transport to PLWHA to hospital
Escorting the PLWHA to hospital
Advising on issues affecting PLWHA
Advice on traditional remedies.

The FGDs revealed that HBC volunteers were useful in the community. The community had benefited from the volunteers a lot. People were able to understand the disease and even accept the sick. They were said to be the link between the community and organizations that work with PLWHA. They helped the community by raising the community concerns in the right forums. They had helped communities to open up. People now knew the importance of knowing their HIV status. They were people whose work was appreciated in the community. The PLWHA who participated in the FGDs were free when talking about their condition.

The FGD participants kept bringing up the issue of lack of medicine and food. These were also key concerns of the volunteers. They were areas that needed to be looked into to improve HBC. In the discussion several PLWHA said they could started taking ARVs since they were advised to have adequate dietary intake before commencing. They knew that without good nutrition the drugs did not work well. The nutrition advice given was the rule of three that was eating the three food groups. The nutrition knowledge given was not specific to any particular symptom. The PLWHA felt they needed more training

on specific nutrition needs for their symptoms. The PLWHA felt the volunteers needed knowledge on various income generating activities to enable their clients set them up.

Observations

Most PLWHA who attended the FGDs were not wasted except three. It was noted that the PLWHA were free when discussing their condition and answered questions with confidence. The time taken on nutrition during a three day training is between one and one and a half hours for Pathfinder and two hours for Joy in a two day training. The content was not specific to needs of PLWHA. Pathfinder is the only organization that gave supplies to volunteers. These were a bar of soap, 100 grams cotton wool, 200 milliliters disinfectant and 500 grams of salt to last a month.

Comments from volunteers

The volunteers came up with many additional comments. The need for more trainings was expressed by 55 volunteers. They felt they needed more time for the nutrition topic, knowledge on interaction of drugs and food, advice for specific symptoms and nutrition knowledge for diseases which need nutrition adjustments. Suggestions were made on provision of inputs for group farms to improve food security for PLWHA.

The comments are summarised in table 4.17.

4.20:Comments by volunteers.

Comments	N=146
1. Need for food for PLWHA	60
2. There is need for more training	55
3. Medicine should be readily available to PLWHA	43
4. The volunteers need protective/ cleaning materials	40
5. PLWHA should be helped to be self reliant	20
6. Component on orphans and children to be incorporated	15
7. Need identification uniforms or budes	10
8. Supervision needs to be regular and supportive	10
9. People are changing and risky behaviour is going down	9
10. Need better remuneration and recognition.	6
11. Leaders should be vocal and good examples	4
12. Need transport to reach clients	3
13. Stigma is going down	3

4.8 Summary of key results

- The HBC volunteers who were interviewed had been trained by various trainers in the district. The hypothesis that the trained volunteers have adequate knowledge was not supported by the findings as only 3.4%(5) were found to have adequate nutrition knowledge.
- Nutrition education was seen as an important component of HBC both by the volunteers and the PLWHA.
- Volunteers who received additional training had better knowledge than those who did not.
- The younger volunteers had better nutrition knowledge than the older ones.
- Most of the volunteers were committed to their work as they visited clients' weekly.

- Most volunteers had five clients or less whom they visited regularly, however volunteers from Pathfinder visited more clients.
- The services that were offered by most volunteers were hygiene, training of caregivers, nutrition education and counseling.
- The three most important challenges to volunteers were high expectations from clients, poverty and uncooperative patients.
- Among the various coping strategies that were available to volunteers, giving what they could, involving the community to help and counseling families and PLWHA were the most employed.
- The education level of the volunteers was positively associated with their nutrition knowledge while age did so negatively.
- There was a difference in nutrition knowledge among volunteers trained by different trainers
- Nutrition education was offered by all volunteers trained by different trainers to their clients.
- Nutrition education was offered by more females than males.
- Neglected services are income generation and spiritual support .

CHAPTER 5

DISCUSSION

5.1 Level of knowledge

From the assessment of current overall nutrition knowledge of trained HBC volunteers, it is clear that a very small percentage of volunteers have adequate knowledge. Specific areas of nutrition knowledge are not well understood by the volunteers. All they can confidently talk about and pass to their clients are the three food groups. The symptoms that PLWHA get which affect nutrition are not well understood. This should be the starting point for the volunteers to understand and give sound advice to the clients. This could imply that the volunteers may not even have the knowledge of the illnesses that PLWHA have that affect nutrition. The beginning point for them to give nutrition care and support will be knowledge on the five symptoms with nutritional implications.

Breastfeeding for HIV positive mothers is a big challenge. All HIV- positive pregnant mothers should be counseled on feeding options available with the risks and benefits clearly explained (NFNC, 2004). They need correct advice and support to make informed decisions. The advice given is aimed at reducing infecting their children. There are options that these mothers should be given to make informed choices. Application of the basic principals of nutrition rights in relation to HIV/AIDS implies that (1) parents have not only a need but also a right to be well informed, and (2) they have a right to good information not only about breastfeeding but a broad range of alternative feeding methods (Kent, 2000). The fact that none of the volunteers is able to mention more than

two infant feeding options for HIV positive mothers implies that the volunteers do not have the capacity to give the mothers a choice. The option of no breastfeeding is the most known option among volunteers and yet the condition of the mothers in the area of study does not make this an easy option. They are poor and can hardly afford substitutes to breast milk. Under some circumstances the options to breastfeeding outweigh the risk of being infected through breastfeeding. The option should be recommended when acceptable, feasible, affordable sustainable and safe (WHO et al, 2003). The utensils used in feeding the baby should be very clean and the water used to prepare the substitute should also be safe. Incorrect use of breast milk substitutes may lead to diarrhoea and malnutrition (NFNC, 2004). Poverty is cited as a challenge to good nutrition for PLWHA, implying that they can not afford adequate quantities of replacement feeds.

The volunteers' knowledge on vitamins and minerals that are very important to PLWHA is poor. Out of all the respondents 46.6 % did not mention any correct response while only 9.6% mentioned three correct answers. Over three quarters 78.8% of the respondents could not state even one correct mineral needed by PLWHA, only 4.1% mentioned two but none mentioned the expected three correct responses. Vitamins and minerals are essential to keep healthy. They protect against opportunistic infection by ensuring the lining of the skin, lungs, and gut remain healthy and that the immune system functions properly (WHO/FAO, 2002). Given the importance the minerals and vitamins play it is important the PLWHA get advised on them correctly.

Micronutrient deficiencies are common in areas where HIV is prevalent (FANTA, 2004). It is necessary for the trained volunteers to have the knowledge on micronutrients so as to pass the same to their clients. Nutrition as indicated by the respondents and witnessed by the researcher during the refresher courses is given little attention. The home care manual used to train the volunteers does not give information on micronutrients that are important for PLWHA.

Knowledge on food safety and hygiene is the only one that is fairly answered with 30.1% of the respondents stating four and only 2.1% not stating any correct advices given in regard to food safety and hygiene. This could have been as a result of the trainers who were mainly nurses and clinical officers. Hygiene is also given a wide coverage in the home care manual.

The nutritional advice given for management of diarrhoea is poor. From the results of the study most of the volunteers advised the use of drugs and fluids not nutrition interventions. Out all the respondents 52.7% stated one answer while only 0.7% of the respondents were able to state four correct advices. PLWHA may have diarrhoea that may not go away. This may be a result of opportunistic infections related to AIDS and even side effects of some drugs. Diarrhoea can result in malnutrition (NASCO, 2002b). Diarrhoea being a concern in the nutrition of PLWHA, it is necessary for correct nutrition measures to be put in place to avoid malnutrition.

Nutrition knowledge for those who are wasted and those not wasted is poor. The majority of the volunteers 70.5% (103) could state one advice and only 3.4%(5) stated two correct answers for a wasted person. For someone who is not wasted 70.5% stated one correct answer while 0.7% stated two correct answers. Wasting is a common problem with PLWHA. It is a problem that all the volunteers must know the appropriate nutritional advice to give. For a person who is not wasted, the disease still increases demands on the energy needs and so PLWHA have to increase their consumption to avoid wasting. The time it takes for a person to progress from HIV to AIDS depends on the individual's general health and nutrition status. If HIV infected persons takes care of their health, including good nutrition, the progression from HIV to AIDS-related diseases is delayed (NFNC, 2004) It is therefore very important to give nutrition care and support to all PLWHA whether wasted or not.

It is clear from the survey and the FGDs that the nutritional knowledge that the volunteers pass to the PLWHA is what is called "the rule of three" that is carbohydrates, protein and vitamins (NASCOP, 2002b). This is however not enough to take care of the nutritional needs of PLWHA. Specific nutritional needs of PLWHA are not taken into consideration in the trainings. The volunteers are not therefore adequately equipped with correct nutritional knowledge to pass to their clients. The responses mostly stated are mainly medical solutions to the symptoms rather than nutrition advice. It is known that nutrition plays a key role in the health of PLWHA (WHO/FAO, 2002). The goal of dietary management of HIV and AIDS-related symptoms is to prevent malnutrition and improve the overall health and nutritional status of PLWHA, thereby slowing the

progression of the disease and enabling greater comfort and productive activity. Dietary management of AIDS-related symptoms refers to the strategy of using food and dietary practices to alleviate the effects of AIDS-related symptoms on food intake and nutrient absorption (FANTA, 2004). The PLWHA do not always have access to medication and the medication works well with good dietary intake. None of the volunteers is aware that energy needs of PLWHA are increased. This deficit in knowledge is a serious issue as the disease makes demands on energy even before symptoms are seen. Lack of this knowledge means the clients do not get correct advice and may deteriorate very fast.

All the volunteers feel that nutrition education is an important component in HBC. Over half 54.1% of the volunteers indicate that the nutrition education they have received is inadequate hence, are unable to deal with clients needs effectively. The nutrition topic is always rushed over even though it is key in their work. In their additional comments the volunteers express the need to know specific advice for symptoms that affect nutrition for PLWHA. Onyango (2003) strongly recommends that nutrition programmes become a regular aspect of every effort to address HIV/AIDS, and knowledge about HIV/AIDS and nutrition be widely disseminated and implemented. The interaction of drugs and food is an area the volunteers need to know. The volunteers also need knowledge on other diseases that need nutrition adjustments like diabetes and ulcers. They find themselves advising patients to eat what their other conditions do not allow.

5.2 Practices

The volunteers have good practices in the community. They offer a number of services to PLWHA and the community. The FGDs confirmed the services they offer and how the community view them. Hygiene, both personal and environmental, ranks first among services offered. According to UNICEF (1993), inadequate hygiene and sanitation contribute in several ways to the incidence of disease and malnutrition therefore good hygiene is necessary to prevent diseases. Counseling came second and nutrition knowledge third. The two services are very important. Counseling has been found to sometimes result in positive changes in nutrition related behaviour that help improve the quality of life of PLWHA (Ministry of Health Uganda, 2003). Spiritual care and prayers was the least offered service. Spiritual care is known to reduce stress, anxiety and promote positive living (NAS COP, 2002b).

The volunteers mostly use schedules to visit their clients so that they are fair to all of them. This is a good practice because there is fairness. All the clients get to be seen regardless of distance and condition if a schedule is used; nevertheless non scheduled visits are done at the request of the client. This is also a good practice because clients whose needs are urgent are attended to. Most volunteers know that they had to refer clients to hospital if too sick. This is a good practice because home based care can not replace care given by medical professionals. Knowing when to link clients to health facilities is very important. From additional comments and challenges listed by volunteers, referrals are a problem because some referred clients and their families expect volunteers to help clear the bills.

The number of people visited per month varied. Most volunteers (33%) regularly visited between 6-10 people per month. The level of nutrition knowledge of the volunteers did not influence the number of clients seen or regularity of visits. This shows that even the volunteers with inadequate knowledge pass the little they know to as many clients as those with adequate knowledge. It is therefore very important to ensure all volunteers have adequate knowledge because there is no association between the clients seen per month, the services offered, regularity of the visits and the level of nutrition knowledge.

5.3 Challenges

The volunteers encountered various challenges in provision of HBC. High expectations from the PLWHA are ranked first. This is unfortunate because the community does not seem to value education alone without handouts. Mobilization and sensitization is needed for education to be accepted in the community as an important input by the volunteers.

The community needs to be involved right from the beginning so that they are aware of what to expect from each organization. Successful community-based programmes in Brazil, Oman, India and Tanzania have shown that active community involvement is important for successful community-based programmes (UNICEF, 1999, Shekar and Latham, 1992). Volunteers say the PLWHA ask for handouts because they feel organizations use the fact that they help PLWHA to get funds yet they do not benefit from the same. Poverty is a big challenge to the volunteers. People in the area of study mainly depended on agricultural production which is highly labour dependant. When people get sick they can not produce much from farming. A study in Ethiopia demonstrated that due to labour losses, the time spent on agriculture reduced from 34

hours per week for non AIDS-affected households to between 12 and 16 for those affected by AIDS (Loewenson and Whiteside, 2001). In the FGDs lack of food is a major concern, this could make most of the recommendations volunteers give regarding nutrition not taken up because of poverty. High medical expenses is a challenge stated by volunteers. This makes PLWHA use most of their resources on increased medical costs. There is hardly any money left for anything else. There is a high risk of compromising the quality and quantity of food. Rejection and stigmatization is a big problem in the community. There is need to continue educating the community on issues of HIV/AIDS. The areas far from Kakamega town are worse off than the town setting. This was clear when organizing the FGDs. The FGDs were all carried out in the municipality because that is the only place where PLWHA were ready to come together and discuss. It is also the only place with active post test clubs. It was not possible to do any outside the municipality where stigma is still a big problem. Materials for handling patients and demonstration are in short supply. The volunteers need soap, disinfectant and gloves to work. Those organizations like Pathfinder who provide the materials give very little. An equal amount is given to everybody yet some have more clients than others. The volunteers have to get their own provisions or improvise and this hinders their work.

There is need for the issue of orphans to be looked into. Volunteers have a problem taking care of needs of orphans (which include food) once the parents pass away. The volunteers are usually the people the orphans easily get attached to therefore seek help from. It is a big challenge since one can not be able to take care of all the orphans that needed help. This concurs with findings from Tanzania that said the first most basic need

of the AIDS orphans is food. Children ate less food that was less nutritious as a result of diminished capacity to provide food. The relatives who foster or adopt an AIDS orphan were themselves likely to lack sufficient food (Mukoyogo and Williams ,1991). In addition to prevention efforts, provision of home-based care and linkages to medical facilities and support networks, support for orphans and vulnerable children is a necessary component of community- based care (Colton and Mwaponda, 2003). The challenge of orphans and the children of PLWHA was also echoed in the FGDs.

The volunteers felt the need to have some identification like a badge. This was especially important in homes that brew chang'aa (an illicit alcohol brewed locally). The volunteers got caught up in police searches and were harassed. Though fear of rape was the second last challenge it raised very serious concerns. The volunteers who had raised it had a bad experience with a husband of a bed ridden client. The safety of the volunteers should therefore be looked into. Working in pairs and visiting clients during the daytime can a measure of safety for the volunteers.

5.4 Coping strategies

The most used coping strategy by volunteers is giving the PLWHA what one could afford. Even though it is used by the majority of the volunteers it is not sustainable. The volunteers reported that they fail to visit needy clients if they lacked provisions particularly food to take to them. They found it embarrassing and painful to visit a starving sick person when they could offer no material help. Another commonly used coping strategy was asking the community to help. This is a very good strategy. The

volunteers reach out to relatives, neighbours, the church and any other willing person to help those in need. Counseling the family and clients had been a useful coping strategy. It helps people accept their condition and even reduces rejection and stigma. Stigma in care settings can be addressed with full understanding of its many underlying factors.

Caregivers would benefit from training that address these underlying factors as observed in a study by Mbwambo et al, (2003).

Starting income generating activities is a strategy not used by many. In their comments the volunteers feel it is a good strategy however the problem is how to get funds to start the activities and how to run them. Income generating activities engaged in are vegetable growing and poultry rearing. This strategy is confirmed by the FGDs. One group of volunteers is training orphans in carpentry and dress making. Income generating skills have been a success in supporting the health and nutrition of PLWHA as documented by Sekagya and Kibirige (2003) sighting the case of PROMETRA UGANDA.

5.5 Factors Associated with Nutrition Knowledge and Practices

There were various statistically significant associations seen among variables. The education level of the volunteers is associated with their nutrition knowledge. The level of education is an issue to be looked into in recruiting HBC volunteers as education is strongly related to positive attributes towards those who are HIV positive (CBS et al, 2004). People with secondary education and above have better scores. Chaudhury (1986) reported that greater education is positively associated with greater awareness of

importance of nutrition. Education is strongly related to positive attributes towards those who are HIV positive (CBS et al, 2004).

More female volunteers offer nutrition education as a service than males. This could imply that the male volunteers may not have been comfortable passing nutrition messages. For the rest of the services there was no statistically significant association with sex. There is need for the male volunteers to be told the importance of passing nutrition knowledge to their clients along with the other services. Nutrition counseling, nursing skills, income generating skills and referrals are services that are offered by all volunteers regardless of the trainers. Some services offered depend on the trainers, Pathfinder stress hygiene while faith-based trainers stress prayers. Nutrition education is seen as an important component by all trainers yet the knowledge given is not adequate.

The volunteers who had attended refresher courses were better off than those who had not. Additional training is important for updating one's knowledge. The length of time for the training is important. Those who had attended trainings that took a longer period performed better. The age of the volunteers was negatively correlated with nutrition scores. The younger volunteers got better scores. These findings do not agree with Nyankuru's (2002) research findings on trained community resource persons. In her study the older community health and nutrition workers had better knowledge than younger ones. The younger people seem to be more open and receptive to HIV/AIDS matters and this might be the reason they are doing well.

The number of clients seen is varied among the trainers. Pathfinder trained volunteers see more clients while those trained by GROOTS see the least. Volunteers need supportive supervision and refresher courses to improve their knowledge and work. Without a supervision component it is hard to know what they do. GROOTS does not supervise their volunteers or offer further trainings. This may be the reason why they see less people. These findings are in line with Gachoki's (1993) research findings where he established inadequate training and inadequate supervision of community health workers as one of the major reasons for poor performance. The supervisions should be supportive to make volunteers more effective. Some volunteers in additional comments said the supervisions received were fault finding missions. Some said they had dropped clients who were not practicing what had been taught in fear of the supervisors.

CHAPTER 6

CONCLUSION AND RECOMMENDATIONS

6.1 Conclusion

The study investigated the nutrition knowledge and practice of trained HBC volunteers. The findings indicate that the nutrition knowledge of most HBC volunteers is not adequate only 3.4% adequate knowledge. The null hypothesis that “the nutrition knowledge of trained HBC volunteers is adequate ” is rejected. It is concluded that HBC volunteers do not have adequate knowledge. The volunteers who receive additional training do better than those who have not. Refresher courses are therefore important for improving nutrition knowledge.

The second null hypothesis of the study “nutrition knowledge does not depend on the training time and the trainer” is rejected. The study showed that the length of training is associated with nutrition knowledge. Volunteers trained for two days and one week have less nutrition knowledge than those trained for three weeks. The knowledge levels of volunteers trained by different trainers also differ. It is concluded that the nutrition knowledge of volunteers is associated with the trainer and training period. More investigation should be done to find out why volunteers trained for three days did just as well as those trained for three weeks.

The third null hypothesis that “nutrition knowledge does not influence the practice of volunteers” is confirmed. The study shows that the nutrition knowledge of the volunteers is not associated with the number of clients seen, the interval before seeing clients and

giving nutrition knowledge as a service to the clients. It was concluded that it is important for all volunteers to have adequate knowledge as level of knowledge did not influence practice. People with inadequate knowledge visited as many clients as those with adequate knowledge.

6.2 Recommendations

The agencies who train HBC volunteers for PLWHA need to give adequate training. The period of training should be addressed for those training for less than three weeks.

Volunteers trained for three weeks get better grades than those trained for two days and one week. The content of the training should be geared towards addressing the specific needs of PLWHA. Refresher courses carried out should aim at giving additional information that can improve on what was previously known. Current information is very important in the nutrition of PLWHA. The nutrition education of the volunteers for PLWHA should go beyond the three food groups.

The reference manual for home-based care needs to be revised to include more nutrition care and support for PLWHA. Important issues like micronutrients and increased energy needs are not addressed. It is recommended that trainers allocate more time for nutrition in the trainings and engage a nutritionists to train volunteers on nutrition care and support so that it professionally done.

In recruitment of volunteers their education level should be borne in mind. The volunteers with secondary education and above perform better than those with primary education. It would be best if people with secondary education are recruited.

The briefs given on how the NGOs are structured and work showed that Pathfinder has a strong supervision component. It was also evident that those trained by Pathfinder see more clients. The supervision component should therefore be strengthened. The trainers should give supportive supervision in the field. This would help the volunteers to improve their knowledge and work better. The supervisions should be used to make volunteers more effective.

The organizations implementing HBC for PLWHA should address the issue of food and the nutrition security of the PLWHA. This would ensure that the progression from HIV to AIDS is slowed. It would also boost the effectiveness of drugs and even adherence to taking them. The component of orphan care is also important. Some of the orphans are HIV positive.

The remuneration and motivation of the volunteers is important in carrying out their work. It should be very clear if they are to get some remuneration or not. The remunerations should also be timely. There should be other incentives like workshops out of the work stations and even tours. Good work should be appreciated by the supervisors.

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Appendices

Confidential

Appendix 1: Questionnaire.

KNOWLEDGE AND PRACTICE OF TRAINED HBC VOLUNTEERS IN KAKAMEGA.

Instructions

[The questionnaire is in 5 sections. Please fill in all sections except for the questions that may not apply to that respondent. Where codes are given circle the answer given].

Division _____ Date _____
Interviewer _____

Section 1. Demographic data

1 Name of respondent _____

2. Age _____

3. Gender 1 Male 2 Female

4. Marital status _____

- 1 Married
- 2 Single
- 3 Divorced
- 4 Widowed
- 5 Separated

5. Religion

- 1 Christian
- 2 Muslim
- 3 Others (specify)

6. Level of education

- 1 None
- 2 Primary
- 3 Secondary
- 4 Others (specify)

7. Current occupation

- 1 Formal employment
- 2 Self employment

3 Volunteer worker

4 Farmer

5 None

6 Others (specify)

8. Are you currently involved with PLWHA as a community worker?

1 Yes

2 No

9. If yes, how did you become involved in it?

1 Selected by community

2 Decided my self

3 Was introduced by other community workers.

4 Others (specify)

10. Are you trained? 1 Yes 2 No

11. If yes which year were you first trained? _____

12. Who trained you? _____

13. How long was the training? _____

14. Have you received any other training related to HBC since then? 1 Yes 2 No

15. If yes by who? _____

16. When was the training? _____

Section 2. Knowledge

17 What causes HIV/AIDS _____

18. How is it transmitted?

Sexually

Contact with blood or other body fluids

From mother to child

19. Name any three signs of AIDS in adults.

-10% weight loss

- Persistent diarrhea

- Fever for over a month

- Cough for over a month

- Recurrent herpes zoster

- Thrush of the mouth

- Generalised enlarged lymph nodes

- Disseminated progressive herpes simplex
- Generalised pruritic dermatitis

20. Name any three signs of AIDS in children.

- Weight loss or abnormally slow growth
- Chronic diarrhea for over a month
- Fever for over a month
- Recurrent common infections like tonsillitis, pharyngitis
- Generalised enlarged lymph nodes
- Generalised pruritic dermatitis
- Thrush of mouth and throat
- Cough for over a month
- Confirmed maternal HIV infection

21. Name any 4 symptoms of HIV/AIDS that affect nutrition of PLWHA

- Diarrhoea
- Oral thrush
- Loss of appetite
- Nausea and vomiting
- Fever

22. What options does an HIV positive mother have in feeding so as not to infect baby?

- Exclusively breast fed then stop and introduce other foods
- No breast feeding give other breast milk substitute
- Pasteurise her milk and feed the baby
- Wet nursing

23. Do sick people have special nutritional needs? 1 Yes 2 No

24. If yes what are the special energy needs of PLWHA?

Increased Energy 10% asymptomatic, 20-30% symptomatic

25. Name any 2 vitamins and 2 minerals that are very important for PLWHA

Vitamins

Vitamin A, B, C, E

Minerals

Minerals, Zinc, Iron, Selenium

26. Is there a relationship between nutrition and HIV/AIDS? 1 Yes 2 No

27. If yes what is the relationship? _____

28. State any 4 advices you give in relation to food safety and hygiene.

- 1.
- 2.

- 3.
- 4.

Section 3.Importance of nutrition education in HBC training

29. What do you think about the adequacy of the training you received in relation to nutrition?

- 1 Adequate
- 2. Inadequate

30. Do you think the nutrition component is important in HBC? 1Yes 2 No

31. If yes how is it important? _____

32. Which areas of nutrition do you feel inadequate?

- 1.
- 2.
- 3.
- 4.

Section 4. Practice

33 What services do offer to PLWHA when you visit them?

- 1 _____
- 2 _____
- 3 _____
- 4 _____
- 5 _____
- 6 _____

34. How many PLWHA do you regularly visit? _____

35. How do you decide your visits?

- 1. On demand
- 2. Have a schedule
- 3. Others (specify)

36. When was your last session with PLWHA?

37. What advice do you give to people with diarrhoea?

- 1. _____
- 2. _____

- 3. _____
- 4. _____

38. What advice do you give to people with oral thrush?

- 1. _____
- 2. _____
- 3. _____

39. When a patient is too ill at home, what do you do? _____

- _____
- _____

40. What advice do you give to PLWHA who is wasted?

- 1. _____
- 2. _____

41. What advice do you give to PLWHA who is not wasted?

- 1. _____
- 2. _____

Section 5. Challenges

42. What are the factors that make it difficult to visit and advise client. Rank them starting with the most important.

- 1. _____
- 2. _____
- 3. _____
- 4. _____
- 5. _____
- 6. _____
- 7. _____

43. What are your copying strategies?

- 1. _____
- 2. _____
- 3. _____
- 4. _____

Comments

Appendix 2: Focus Group Discussion Guide PLWHA

1. Do you have any trained home-based care volunteers in your community?
2. What are their roles?
3. What services and activities do they carry out in the community?
4. How has the community benefited from their services?
5. How does the community perceive their work?
6. Do they pass nutrition knowledge during their visits?
7. Does the nutrition knowledge answer the nutrition related problems?
8. What area of HBC do you feel they need more training?

Appendix 3: Observation guide

PLWHA

1 Body condition

Wasted or not wasted

2. Participation in discussion

Active or on not active

3. Interaction with each other

Free or not free with each other

Trainings

1. Time allocated to nutrition topic

2. Course content

Does it address symptoms that affect PLWHA or not

Supplies

What is issued and the quantities

Appendix 4

FIELD RESEARCH ASSISTANTS TRAINING

19TH – 21ST JULY 2005

Objectives of the training

At the end of the training the research assistants should:

1. Have good interpersonal skills
2. Know the principles of field ethics
3. Have good interviewing techniques
4. Be able to administer the questionnaire correctly.

Objectives of the study

The overall objective of the study is to assess the nutrition knowledge and practices of trained HBC volunteers in Kakamega.

Specific objectives

1. To determine the level of nutrition knowledge of trained HBC volunteers.
2. To determine the practice of the volunteers in the community on HIV/AIDS and nutrition issues
3. To document challenges faced by volunteers in their work.
4. To identify coping strategies used by volunteers.
5. To determine the differences, association relationships between the independent variables (sex, education level, trainer, age, trainer, initial training period) and the dependent variables (nutrition knowledge and practice).

Interpersonal skills and principles of field ethics.

- Introduce yourself to the volunteers
- Make them know about the questionnaire.

- Answer cropping up questions.
- Assure them the information given is confidential.
- The respondents have a right to privacy.
- The respondents have a right to decline to be interviewed or answer certain questions.

Interviewing technique

- Let the respondent be at ease, create a rapport.
- Ask the questions as they are.
- Sequence them well.
- Know how to control the respondent so that they only answer what has been asked.
- Probe them
- Ask what they exactly mean if you don't get the answer well. Ask for clarification.
- If several answers given in one response then record them in the appropriate questions so that you do not repeat the questions again.
- Know the questionnaire thoroughly well.

Questionnaire

- Read the questionnaire well
- Formulate the questions in Kiswahili and Luhya.
- Agree on best terms to use in Kiswahili and Luhya.
- Ask question by question as you understand them.
- Have simulation of asking trying and recording responses.

Pretesting

- This is done so that the questionnaire is better understood.
- It will create confidence in doing the actual work.
- It will help master the questionnaire.
- It will bring out the difficult areas.
- It will bring out questions and areas that need improving.

TIME TABLE

Day	9.00am-10.30pm	11.00-1.00pm	2.00pm – 4.00pm
1	Objectives of study	Interpersonal skills and principles of field ethics	Interviewing technique
2	Reading through the questionnaire formulating questions in Kiswahili and Luhya	Questionnaire administration from question to question	Administration of questionnaire to each other and recording responses
3	Pretesting	Pretesting	Reporting back and adjusting the questionnaire

Appendix 5: Data analysis matrix

Objective	Variables	Statistics	Computer software
To determine the level of nutrition knowledge of trained HBC volunteers	<ul style="list-style-type: none"> • Scores obtained as percentages. • Percentage scores categorized into adequate, moderate and inadequate nutrition knowledge 	Frequencies, means percentages	SPSS
To determine the practice of the volunteers in the community on HIV/AIDS and nutrition issues	<ul style="list-style-type: none"> • Number of PLWHA visited per month. • Duration between visits. • Methods of deciding whom to visit. • Services offered. 	Frequencies percentages	SPSS

To document challenges faced by volunteers in their work	<ul style="list-style-type: none"> • Challenges 	Frequencies	SPSS
To identify coping strategies used by volunteers	<ul style="list-style-type: none"> • Strategies 	Frequencies	SPSS
To determine the differences or associations and relationships between independent variables (age, sex, education level, trainers, initial training period, other trainings) and the dependent variables nutrition knowledge and practice(PLWHA visited per month, visit intervals, services offered).	<ul style="list-style-type: none"> • Age of volunteer • Sex of volunteer • Trainers • Initial training period • Education level • Number of PLWHA seen per month • Interval between visits • Nutrition knowledge 	Frequencies Chi-square Cross tabulation Correlations Regression Multivariate analysis	SPSS