

MIDLANDS STATE UNIVERSITY
FACULTY OF EDUCATION



**THE IMPACT OF NUTRITION GARDENS ON PEOPLE LIVING
WITH HIV AND AIDS IN MUTARE NORTH**

BY

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Declaration

I Harmony Nyakonda (R12799B) do hereby sincerely declare that this dissertation is my own original work that has not been previously submitted to any other University. In writing this dissertation, I duly complied with ethical issues and laws governing Intellectual Property.

Dissertation title: The impact of nutrition gardens on people living with HIV and AIDS in Mutare north.

Signed.....

Harmony Nyakonda

Date.....

Certificate of Supervision

I hereby certify that I personally supervised this dissertation in accordance with Department Regulation and the University General Regulations

On that basis, I confirm that this dissertation is examinable.

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Dedication

To my dear children and my parents I dedicate this work, I thank them for being there for me and believing in me, my brother Blessing and my sisters were very instrumental and supportive, I say thank you very much.

ABSTRACT

HIV and AIDS have devastated many lives in various ways including nutrition deficiency but nutrition gardens can provide a rock solid solution to nutrition problems of PLWHA. Identified problems include frequent illness which are nutrition related, failure to send children to school, inability to sustain the general needs of families and failure to contribute to community development meaningfully. Data was collected from nutrition garden participants, city council officials, NGO representatives and health personnel on nutrition garden programmes. Questionnaires, interviews and observations were used to collect the relevant data. The collected data was analysed and interpreted. There is a huge deficit between what the garden participants expect from their participation in garden activities and what they are actually benefitting. The government can complement NGO efforts in sourcing financial support for investments in water harvesting structure, NGOs need to mobilise adequate resources before they embark on nutrition garden programmes, city councils should consider the condition of garden participants before citing the gardens as it regards accessibility and the Ministry of Health can incorporate nutrition garden education as they deal with PLWHA. The city councils can benefit when participants get proper nutrition in that they cut on costs incurred in health services offered to PLWHA. The Ministry of Health can benefit in the reduction of sickness which can save money used to treat opportunistic illness that take advantage of vulnerable and malnourished bodies of PLWHA.

CHAPTER 1

THE RESEARCH PROBLEM

1.0 INTRODUCTION

HIV and AIDS, the plague of the twenty first century, continues to claim human lives despite consolidated efforts by stakeholders to control and mitigate its impact. While a fool-proof medicinal cure for this bane is still waited upon anxiously, the ways to mitigate its effects and slower the disease progression in the affected population is an onerous and confounding task. Many efforts have been made by various stakeholders trying to alleviate the plight of people living with HIV and AIDS (PLWHA) in many communities. In all this effort, nutrition gardens emerged in the recent past as a measure to be reckoned with in trying to improve the living standards of PLWHA. Where hunger and poverty are most widespread is also where most of those infected and affected by HIV and AIDS live. Especially in sub-Saharan Africa both have reached alarming proportions. This chapter of the study will focus on the background of the study, the statement of the problem, the research questions, the significance of the study, definition of terms, abbreviations, delimitations, limitations and a summary.

1.1 BACKGROUND TO THE STUDY

More than 60 million people are living with HIV throughout the world, including the approximately 12 million newly infected in 2013, according to UNAIDS. Over 25 million have lost their lives to the disease, leaving behind orphaned children and ravaged communities. The greatest burden of the disease is concentrated in developing countries which are least able to cope. The countries of sub-Saharan Africa and the Caribbean are home to approximately 45 million people living with HIV and AIDS. In these regions, HIV and AIDS has deepened poverty, exacerbated food insecurity, and diverted state resources. Over the last decade, HIV and AIDS has become increasingly associated with malnutrition and household food insecurity in many countries around the world. Life-prolonging medication exists for HIV and AIDS, but access to such medicines and accompanying care is beyond the reach of most people living with the disease. This is especially the case in countries where the rapid increase in HIV and AIDS is creating additional pressures for resource-poor communities in terms of nutrition. Within this context, a new imperative has emerged: rethinking development strategies and redirecting projects and resources to address the impact of HIV and AIDS on food and livelihood security in the form of nutrition gardens. In Zimbabwe, every individual has, in one-way or another been affected by the HIV and AIDS pandemic either through the loss of a parent, a loved one, a close relative or a workmate. The social and health impact of this pandemic is enormous and manifests itself in a growing number of orphaned children, an increased burden on the elderly and society in

general, a loss of skilled and other manpower, a diversion of resources from productive sectors and a heavy strain on the health delivery system. In Mutare North, the problems posed by HIV and AIDS cannot be left unchallenged. Many PLWHA continue to live pathetically, some cannot even afford to have two meals per day, and others with dependants even abandon their responsibilities of caring and protecting children and leave their young children to roam the urban streets like sheep without a shepherd. All this happens within reach of welcome initiatives like the advent of nutrition gardens which aim to improve their lives. It has been recognised in Zimbabwe that there is a dire need for concerted efforts to fight this menace by calling on board friendly partners such as local authorities and non-governmental organisations to help construct nutrition gardens in needy communities. Proper nutrition has emerged as a major booster of health and effectiveness of medication in those living with HIV and AIDS. It has been noted that many people lack the initiative to providing for themselves, some do not have the requisite skills and resources of setting up basic nutrition gardens that are so vital in Mutare North. Other complementing initiatives that have been launched include the mobilisation of resources through the National Aids Levy, an increased public awareness through drama and art, electronic and print media, and distribution of condoms.

1.1.1 Increased Risk of Infection and Transmission

WHO and FAO (2009) say malnutrition can raise the risk of infection for two reasons: firstly, it causes the physical barriers (skin, mucous membrane) and the immune defenses of the mucous membranes to be weakened, thereby affording better entry possibilities for the HI-

Viruses. Secondly, malnutrition reduces the production of CD4 cells, a particular type of lymphocytes which coordinate the immune system and help other lymphocytes to fight infection. A deficiency in vitamins with antioxidant effects (vitamins A, C, E) and minerals (selenium, zinc) and a low CD4 cell count all contribute to a higher virus burden, thus malnutrition increases the risk of transmission from one sexual partner to another and from a mother to her child.

Furthermore malnutrition can increase the risk of genital ulcers, sexually transmitted diseases and inflammation of the mammary glands, which again have been shown to increase the risk of and HIV infection. If no preventive measures are taken, around one third of babies born to HIV-positive mothers will be infected during pregnancy or childbirth, or by breastfeeding. Malnutrition impairs the mother's immune status, one of the most important factors in influencing the risk of HIV transmission. In addition it should be taken into account that women require increased amounts of certain nutrients during pregnancy and while breastfeeding.

1.1.2 Good Nutrition Is Essential For Successful Antiretroviral Treatment (ART)

Good nutrition is increasingly being recognised as a key component in the care and support for people living with HIV and AIDS. Antiretroviral treatment can be especially successful when access to appropriate nutrition is guaranteed. Severely under-nourished people who take antiretroviral drugs are six times more likely to die than well-nourished people. It is also more difficult for them to cope with the side effects of the drugs, and their bodies need longer to build up sufficient resistance to the infection (Gillespie and Kadiyala, 2005).

Non-governmental organisations in partnership with local authorities have established nutrition gardens around Mutare North which are aimed at helping those community members living with HIV and AIDS in nutritional matters. There are many people living with HIV and AIDS in Mutare North who have also joined up to become members of nutrition gardens. However, it is saddening to note that the gardens have not improved the plight of these people significantly and many still go to the gardens hoping to earn better living standards. Some have since abandoned going to the nutrition gardens for several reasons ranging from nutrition garden proximity, to availability of accessories, availability of equipment and other resources such as availability of water which are vital for the viability of the gardens. Some nutrition gardens which were erected at high costs, consuming resources in excess of thousands of dollars have attracted names such as ‘white elephants’ since they have not been effective to the cause of their existence.

1.2 STATEMENT OF PROBLEM

Despite concerted efforts by various stakeholders to alleviate the plight of people living with HIV and AIDS on nutrition and dietary concerns using nutrition gardens, many would be beneficiaries of such efforts are still failing to benefit meaningfully in Mutare North. The scourge of HIV and AIDS continues to bite in many communities and the most affected groups are women and children in this area. In Mutare North there are many PLWHA who have joined nutrition garden programmes in expectation that they will improve their nutrition and consequently have a better living standard but unfortunately, many of these people are

not benefiting meaningfully from the nutrition gardens. It has been shown that most of PLWHA participating in nutrition gardens do not afford decent balanced meals hence their frequent visits to health centres as a result of nutrition problems. Some have dependents, especially school going dependents who end up with malnutrition problems too because their guardians are unable to provide proper nutrition for them. Suffice to mention some children in Mutare North who stay with some members of these nutrition gardens who do not have descent clothes, some cannot even afford school uniforms for their children and these become laughing stocks as they go to school. This happens despite the great potential of nutrition gardens to turn around the unfortunate condition of PLWHA in Mutare North who are nutrition garden members by at least availing proper nutrition for the family. The most readily available remedy to this predicament for basic nutrition needs is for the affected people to work for themselves.

1.3 MAIN RESEARCH QUESTION

- ✚ What is the impact of nutrition gardens on people living with HIV and AIDS in Mutare North?

1.3.1 Sub Research Questions

- ✚ To what extent are nutrition gardens for HIV and AIDS participants operational in Mutare North?
- ✚ To what extent have nutrition gardens improved the lives of PLWHA in Mutare North?

1.4 SIGNIFICANCE OF THE STUDY

The research is important not only to the researcher but also to the HIV/AIDS patients, government, companies and the national economy.

1.4.1 HIV and AIDS patients

Some people living with HIV and AIDS are suffering so much that they fail to provide good food for themselves. Others are even breadwinners who have dependents they must look after, and this worsens their predicament too. Good nutrition for HIV and AIDS patients is an olive branch extended to them in that they can live a healthier life and continue to work for themselves and their dependents a little longer.

This study will help the PLWHA to make proper adjustments in utilising the nutrition gardens in a way that improves their livelihood. They can have proper nutrition which enable them to retain good health and work for themselves as well as their families.

1.4.2 Government (Ministry of Health)

The Ministry of Health and Child Care has the mandate of running the health services in Zimbabwe. In the face of the HIV and AIDS pandemic, it is an added responsibility of the Ministry to ensure that all affected persons in the country get proper medication.

This study will contribute indirectly to medical cost reduction on PLWHA. By ensuring that the HIV patients get proper nutrition, it is a welcome development to the Ministry of Health and Child care since it will aid to the effective working of Anti-Retroviral treatment. It will also reduce expenses incurred by the ministry in that when patients get proper nutrition, they keep in good health and opportunistic infections are kept at bay, they are more resisted and hence the ministry uses less money on the budget for opportunistic diseases.

1.4.3 Companies

Companies employ workers so that they can make profit. Since HIV and AIDS knows no gender, race, age, creed, profession or even religion, it infects and affects all across the humanity spectrum as long as they expose themselves to infection. For such a reason, workers in companies also get infected with HIV and when they get sick because of HIV and AIDS they fail to work as per expectation. Their productivity at the workplace decreases and companies start to incur losses because of reduced productivity.

This study will be useful to companies that have some employees who are living with HIV to retain them at work longer, hence benefiting from their job experience for a longer time than they would when they frequently fall ill due to nutritional health challenges. Therefore, ensuring proper nutrition by means of nutrition gardens to those living with HIV and AIDS is advantageous to companies in that they can retain their experienced workers for long even if they will be HIV positive because they will be having good health and able to work productively.

1.4.4 The National Economy

Most people living with HIV and AIDS are trained and skilled people. They are of high value not only to their families and immediate communities, but to the macro national economy. As they succumb to the pain and torture inflicted by HIV, they also fail to contribute meaningfully to national economic development. The part played by any trained individual is very important to any economic development of any country.

This study will be of great importance to national economic growth when a country can sustain its skilled people living with HIV and AIDS with proper nutrition due to proper use of nutrition gardens. The Gross Domestic Product will continue to grow, hence the country will have meaningful economic growth.

1.4.5 The Researcher

The researcher will benefit directly and indirectly from the research. The direct benefit is that, it is part of the requirements for the researcher to carry out a research project to complete an academic course. Without this research, the researcher will not be able to finish the programme under study at the University. Among indirect benefits to the researcher are creation of new knowledge, contribution of new knowledge to others, expanding already

known knowledge and even employment creation on the part of participants when they produce surplus in their gardens which calls for them to start marketing horticultural produce.

1.5 DELIMITATIONS OF THE STUDY

While HIV and AIDS nutrition is a global concern, this study is delimited to Mutare North. The delimitation is necessitated by the reasons that the researcher is currently staying in Mutare North and has identified the challenge here. Mutare North is in Mutare City, the capital of Manicaland province. It is 265.9 km East of Harare and about 560.8 km from Bulawayo. Mutare is in eastern Zimbabwe, near the border with Mozambique. Located in the Eastern Highlands, it is a road hub on the Harare-Beira Railroad, shipping the products of the surrounding districts including gold, tobacco, tea, grain, citrus fruits, diamonds and timber.

1.6 LIMITATIONS OF THE STUDY

The findings of the study will be influenced by sampling techniques to be used which will over represent female respondents than males on participants because more than 90% of participants are women, this obviously will influence the outcomes of the study, and however, the researcher will try to include all male participants in the study by purposive sampling. The sample will be drawn from a population that already has more females than males. This study will deal with various stakeholders who include HIV and AIDS

participants in Mutare North, health officials at St Joseph's mission hospital, city council and at Sakubva clinic. One may not choose a sample at will, but will have to use specific respondents in the study area. Selecting a proper sample from this population will obviously have a bearing on the research outcome. Movement of materials and items including the population under study and the availability of means of transport for the researcher is of great importance in any study, in this endeavour, transport will not be easily available to carry out all the necessary movements and this will ultimately impact on the outcome of the study, however, on the issue of transport, the researcher will try to find occasions when all participants converge at the gardens for research activities such as sampling and interviews so that the researcher will not need transport more frequently. The researcher will also use observations which may influence the behaviour of participants due to the Hawthorne effect, for those who may suspect that they are being observed.

Another limitation is that of *self-reported data*. Whether one relies on pre-existing data or conducting a qualitative research study and gathering the data, self-reported data is limited by the fact that it rarely can be independently verified. In other words, one has to take what people say, whether in interviews, focus groups, or on questionnaires, at face value. However, self-reported data can contain several potential sources of bias that one should be alert to and note as limitations. These biases become apparent if they are incongruent with data from other sources. These are:

- (a) **selective memory** which is remembering or not remembering experiences or events that occurred at some point in the past;

(b) **telescoping** is recalling events that occurred at one time as if they occurred at another time;

(c) **attribution** is the act of attributing positive events and outcomes to one's own agency but attributing negative events and outcomes to external forces; and,

(d) **exaggeration** which is the act of representing outcomes or embellishing events as more significant than is actually suggested from other data.

1.7 DEFINITION OF TERMS

Human immunodeficiency virus HIV is the virus that causes AIDS. It attacks the immune system, the body's defense against disease. Most people become infected with HIV through unprotected sexual intercourse.

Acquired Immune Deficiency Syndrome Acquired Immune Deficiency Syndrome, or AIDS, is a disease caused by a retrovirus known as the Human Immunodeficiency Virus (HIV), which attacks and impairs the body's natural defense system against disease and infection.

Antiretroviral therapy The drugs that suppress the HIV, they slow down the replication of the virus and hence

prolong the lives of those infected with the virus.

Immunity

Immunity is how one's body protects itself against germs and infections.

Malnutrition

Malnutrition occurs when the body does not get enough of the right foods, for it to remain healthy.

Opportunistic infections (OI)

OI are infections that take over when the immunity of HIV positive people is too weak to fight them off.

CD4 cells

A particular type of lymphocytes which coordinate the immune system and help other lymphocytes to fight infection.

1.8 SUMMARY

This chapter dealt with the background to the study, the statement of the problem, the objectives of the study and the research questions. The significance of the study was also provided so as the delimitations and limitations. The chapter commences by introducing the

topic under study and ends by giving the definition of terms. The next chapter is chapter 2 which reviews related literature.

CHAPTER 2

REVIEW OF RELATED LITERATURE

2.0 INTRODUCTION

PLWHA have numerous challenges that stare direct into their faces. Among these challenges is the issue of nutrition. Many of these people who finally succumb to the plight of HIV and AIDS do so because of poor nutrition. The nutrition problem in HIV and AIDS patients is not unique to this particular study. Various researches have been carried out in different parts of the world to try and curb the challenges associated with nutrition in HIV and AIDS patients. This chapter identifies related literature research findings and case studies on the impact of nutrition gardens by various researchers in diverse cities and places of the world. Also explained are nutrition garden challenges, causes of challenges, impact of the identified challenges and how other authorities view the issue. Solutions and recommendations reached in other researches are also provided. The chapter concludes by citing some challenges associated with nutrition gardens which presents opportunities for future researches in the subject.

2.1 RELATED LITERATURE IDENTIFICATION AND INTERPRETATION

Several authorities around the world have made significant contributions to the subject of HIV and AIDS and nutrition. Identified are some studies done that are related to the topic under investigation

2.1.1 Nutrition, HIV and AIDS

Several authorities have made their input concerning the relationship between HIV and AIDS and nutrition. This study will reflect on a number of critical areas on how important proper nutrition is to PLWHA. Many are times that HIV infected people do not even know the importance of proper nutrition to their wellbeing, regardless of their HIV status. The following are important established facts by various authorities in different studies regarding HIV and AIDS and nutrition.

Modiselle (2000) says AIDS is caused by a retrovirus known as the human immunodeficiency virus (HIV). The virus attacks the immune system and impairs the body's natural defense system's ability to fight against infection. Some people who contract HIV do not show symptoms or become ill for years. This phase of the disease is called the asymptomatic phase. During the asymptomatic phase, the immune system becomes progressively weaker and other viruses and bacteria can take advantage of the "opportunity" presented by the weakened immune system to cause other illnesses such as pneumonia or tuberculosis (TB). These opportunistic infections are a clear indication of a

weakened immune system. Once these opportunistic infections are evident, the person is said to have AIDS, which is the end-stage of HIV infection.

The time it takes to progress from having HIV to having AIDS depends on general health and nutritional status before and during the time of HIV infection. Good health, including good nutrition, can help delay the progression from HIV to AIDS and improves the quality of life. This is why nutrition care and support are a very important parts of comprehensive care and treatment of PLWHA.

In Sub-Saharan Africa, malnutrition has been noted as a common clinical problem in advanced HIV infection. The presence of opportunistic infections and malignancies increases the need for nutrients and impairs absorption. Malnutrition can impair organ function, independently worsen immune dysfunction, compromises the nutritional status of infected individuals and, in turn, poor nutrition status can increase the progression of HIV infection to full blown AIDS. It was emphasised that there is need to identify nutritional interventions that would improve the quality and length of life for people living with HIV. In addition, there is need to advocate for interventions which are effective, affordable and acceptable for PLWHA such as low input nutrition gardens in Africa. It has also been recognised that good nutrition has the value of boosting immunity through maintaining a good diet, general fitness and positive frame of mind. This brings a holistic approach that recognises the link between mental and physical health. It has also been noted that nutrition is the only form of therapy available. A lesson was drawn that, with correct nutrition, which

includes vitamin supplementation and a holistic approach to HIV and AIDS, one can remain healthy almost indefinitely if started early enough (Hatloy, 1998).

2.1.2 Basic Nutrition

McGarry (2009) suggests that nutrition is the sum of all the processes involved in the body's taking in, assimilating and utilising nutrients. Food contains the nutrients that the body needs for the following:

- Development, growth, maintenance, replacement and repair of cells and tissues
- Resistance to and fighting of infection
- Production of energy, warmth, movement and work

When the body does not get enough quality food, it becomes weak and cannot function properly. The nutrients the body needs to function are water, carbohydrates, proteins, fats, vitamins and minerals. Some of these nutrients such as carbohydrates, proteins and fats are needed in large amounts. These are referred to as macronutrients. Others such as vitamins and minerals are needed in smaller amounts and are referred to as micronutrients. The body needs both macronutrients and micronutrients in the right amounts and combinations for the body to function properly.

Papathakis and Rollins, (2005) posit that diet is the amount and kind of food and drink a person eats and drinks day to day. A nutritious or balanced diet includes a variety of foods that help meet the body's functional needs. No single food except breast milk provides

infants under 6 months old with all the nutrients their bodies need to function properly. For everyone else, including young children, adolescents, pregnant and lactating women, the elderly, and PLWHA, eating a variety of the right foods and in the right amount is key to good health.

2.1.3 The Relationship between Nutrition and HIV

D’Cruz (2004) contends that malnutrition; a condition caused by inadequate or excess intake of nutrients—is a common problem in many African countries and a prominent feature of HIV and AIDS. The relation between malnutrition and HIV is a vicious cycle. Malnutrition weakens the immune system, which worsens the effects of HIV, which then increases the likelihood of malnutrition. People with HIV have an increased risk of malnutrition because of reduced food intake, reduced nutrient absorption and reduced nutrient utilisation. Because poor nutrition increases susceptibility to opportunistic infections, it may speed up the progression from HIV to AIDS.

Unlike other infections, HIV attacks and destroys the cells of the immune system. Ultimately, other organs become more vulnerable to other infections. These infections affect nutritional status by reducing nutrient intake and absorption while increasing the utilisation and excretion of other nutrients, leading to protein-energy malnutrition and certain micronutrient deficiencies as the body tries to fight the attack on its immune system. This cycle usually contributes to weight loss and the wasting syndrome seen in adult AIDS patients. Decreased food intake is the most important cause of malnutrition and wasting. Other causes are malabsorption of nutrients and alterations in metabolism.

HIV affects nutritional status of patients early in the course of infection, even before other symptoms appear. It is important to identify and treat malnutrition promptly because it negatively affects immune function and is associated with HIV disease progression. Good nutrition plays an important role in the comprehensive care and management of HIV and AIDS because it:

- helps prevent malnutrition and wasting
- enhances the body's ability to fight opportunistic infections
- helps achieve and maintain optimal body weight
- improves the effectiveness of medications
- helps prolong good health
- improves the quality of life

In 2002 the Food and Agriculture Organisation of the United Nations (FAO) presented a diagrammatical illustration of the impact of poor nutrition on PLWHA.

Fig 1: The impact of poor nutrition on PLWHA

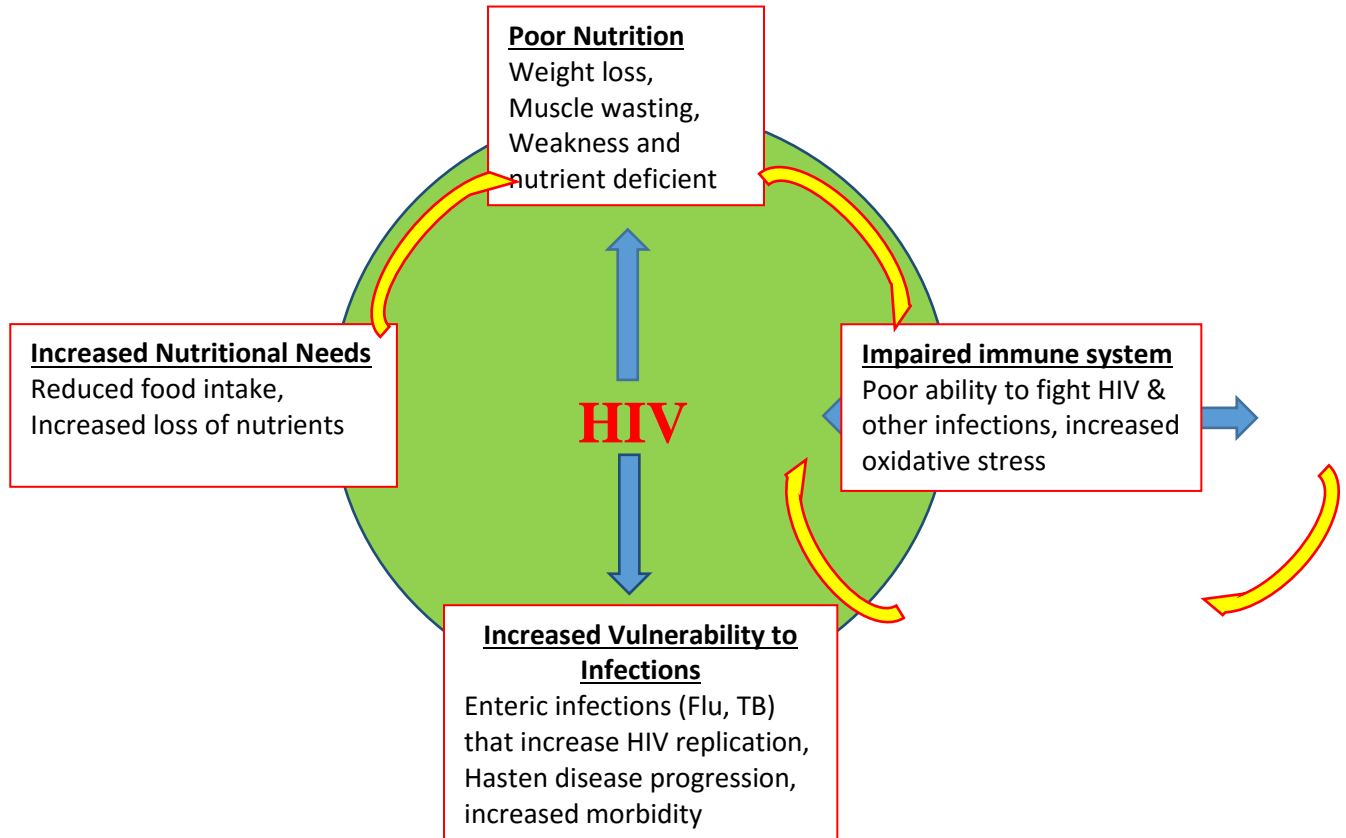


Fig (i) the impact of poor nutrition on PLWHA

Source: Food and Agriculture Organisation of the United Nations (FAO). 2002. *Living Well with HIV and AIDS: A Manual on Nutritional Care and Support for People Living with HIV and AIDS*. Rome.

FAO came up with a set of indications that may suggest that one is malnourished. Clinical signs and symptoms that can indicate malnutrition in PLWHA include weight loss, increased susceptibility to infection, loss of muscle tissue, diarrhoea, poor absorption, poor response to medication, vitamin and mineral deficiencies, hair changes, hair loss and reduced immune competence signs of nutritional deficiencies

2.1.4 Major Causes of Poor Nutrition

FAO (2002) provides various factors that are responsible for causing malnutrition in PLWHA. Listed below are some factors that are responsible for malnutrition:

A. Reduced food intake for the following reasons:

- a) Difficulties eating or swallowing because of painful mouth or throat sores
- b) Nausea and vomiting
- c) Poor appetite as a result of fatigue, depression, and/or changed taste of food
- d) Lack of money to buy food
- e) Inability to grow food
- f) Difficulty shopping and cooking
- g) Lack of awareness of the importance of nutrition, especially when recovering from illness
- h) Side effects of medications for example, nausea, vomiting, metallic taste in the mouth, diarrhoea and abdominal cramps.
- i) Weakness

B. Excessive nutrient loss from diarrhea

Figure 2: The impact of good nutrition on PLWHA

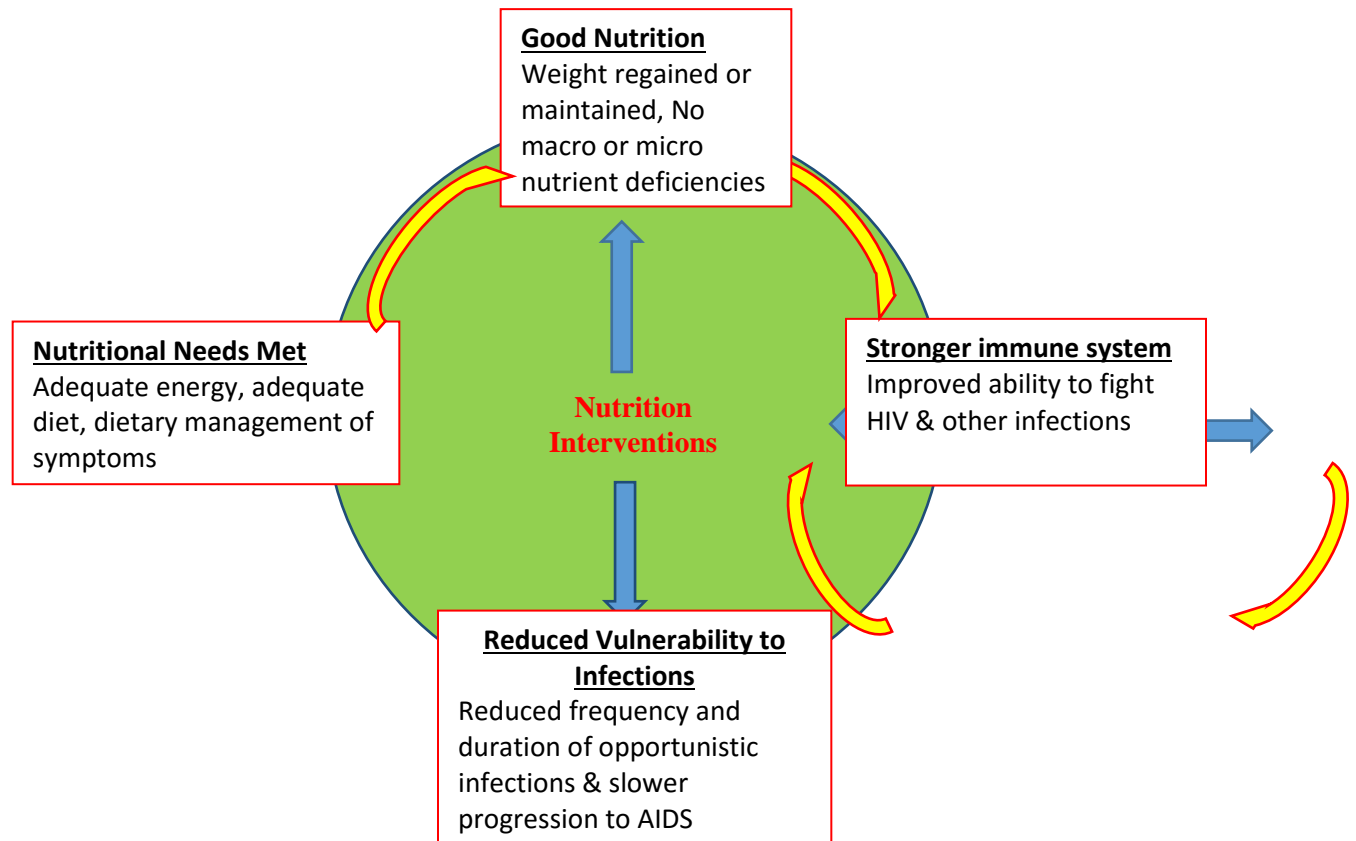


Figure (ii): The impact of good nutrition on PLWHA

Source: FAO. 2002. *Living Well with HIV and AIDS: A Manual on Nutritional Care and Support for People Living with HIV and AIDS*. Rome.

2.1.5 Foods to Meet the Energy and Nutrient Needs of PLWHA

PLWHA need to adhere to a stricter diet than those living without the virus that causes AIDS. Their nutrition requirements require more attention because their lives largely depends on how well they get proper nutrition coupled with proper use of ART. Several things should be done by PLWHA and the following measures are critical to meet their increased energy and nutrient needs:

- Eating more food and a wider variety of food than they normally do.
- Eating more frequently throughout the day in small meals to maximise energy intake, especially if appetite is a problem.
- Eating more nutrient-dense foods.
- Eating foods fortified with essential nutrients, such as iron and B vitamins.

Locally available and indigenous foods can provide a healthy diet for PLWHA. These foods are often easy to prepare and provide essential nutrients. They are generally wholesome, affordable, accessible, unrefined and unprocessed and therefore more nutrient dense. These foods can be part of a nutritious and balanced, healthy diet (FAO, 2002).

2.1.6 Nutrition Care and Support For PLWHA

Gillespie and Kadiyala (2005) say PLWHA need counselling and support services to improve their nutrition at all stages of HIV infection. Good nutrition helps to strengthen the immune system and can delay the progression of HIV to AIDS, making it possible for PLWHA to remain productive in their families and in their communities at large. The goals

of nutrition care and support for PLWHA are to ensure adequate nutrient intake by improving eating habits and building stores of essential nutrients needed for the immune system to function. Nutrition care also aims at preventing nutritional deficiencies, loss of weight and muscle mass. Nutrition care improves response and adherence to ART. It also minimise the nutritional impact of secondary infections and manage HIV-related symptoms and medication side effects that affect food intake. Nutrition care aims to promote a sense of well-being, self-esteem and a positive attitude, which improves the quality of life.

To achieve the goals of nutrition care and support, nutrition assessment, counselling and support (NACS) should be included in any programme serving PLWHA. This package includes nutrition assessment, nutrition education and counselling, therapeutic and/or supplementary feeding, referral to follow-up care and other needed services such as food security through the use of nutrition gardens and social safety net programmes like food support and cash transfers.

NACS is an approach that provides food and nutrition interventions as part of a clinical package of HIV care and treatment, with strong links to community-based services whenever possible. The purposes of NACS are to improve nutritional status and minimise loss of muscle mass using economically viable means such as nutrition gardens. NACS aims to promote and improve adherence to ART, slow disease progression, improve birth outcomes of HIV-positive pregnant women and promote HIV-free survival of infants and children, provide continuity of care for PLWHA in PMTCT and ART health programmes and to improve the general quality of life.

2.1.7 Nutrition Assessment of PLWHA

Nutrition assessment is critical for PLWHA because nutritional status is a sensitive indicator of well-being and helps identify problems early for quick response. Nutrition assessment helps determine what nutrition interventions clients need, such as diet changes, food supplements, medical treatment and referral for further assessment. Nutrition assessment measures changes in nutritional status to monitor progress (Gillespie and Kadiyala, 2005).

2.1.8 Nutrition Support for PLWHA

Topouzis (2000) posits that many food assistance programmes, such as those of World Food Programme (WFP), aim to increase the food security of HIV-affected populations, targeting families with household food rations that often consist mainly of staple foods. In the health sector, food is sometimes prescribed to supplement the diets of PLWHA with clinical malnutrition identified through routine anthropometry or assessment of health status or vulnerability. Nutrition support for PLWHA include therapeutic foods to treat severe acute malnutrition (SAM) and/or supplementary foods to treat moderate acute malnutrition (MAM). In these modern economic harsh times, governments and other NGOs may fail to provide adequate assistance in terms of nutrition to PLWHA, hence the importance of PLWHA turning to growing their own food for adequate nutrition provisions (Food and Drug Administration, 2001).

2.1.9 Nutrition Gardens in Zimbabwe

Lock (2012) explicates that organisations involved with nutrition gardens focus on issues related to HIV and AIDS and amongst them are food relief programme and Home Based Care (HBC). The organisations found it necessary to introduce permaculture to the HIV and AIDS affected households in the form of Low Inputs nutrition Gardens (LING). The LING complemented the Food Relief Programme (FRP). LING were identified as means of buttressing food, medicinal and nutritional requirements of the people infected and affected by HIV and AIDS in Harare, Bulawayo and other cities and towns. It was shown that nutrition gardens reduce malnutrition among PLWHA if conducted properly.

The idea behind LING was to grow healthy, nutritious food using the locally available resources at the same time without damaging the environmental resources on which we depend on. LING were seen as an answer to the increasing gap noted between the rural and urban poor in terms of access to nutrition. Rural people in Zimbabwe used to eat rich and varied diets with over 180 traditional food plants harvested from the wild or grown in the gardens and an average of 150g of fiber per day from fruits, vegetable pulses and unrefined grains. However, today urban Zimbabweans commonly eat less than ten food plants (maize, rape, covo, onions, tomatoes, cabbage, *tsunga* and seasonally sweet potatoes, pumpkin leaves). The urban Zimbabwean consumes less than 20g of fiber per day and uses unhealthy amounts of fat, salt and sugar. The concept adopted by the organisations involved in nutrition gardens is typically characterised by diversified crops including herbs of different

medicinal properties that were targeted at the vulnerable groups such as PLWHA and OVC in the rural and urban areas who usually suffer from malnutrition as a result of poor diets.

2.2 ORGANISATION OF RELATED LITERATURE (CASE STUDIES)

Nutrition gardens for PLWHA are not unique to Zimbabwe and Mutare North, several studies on nutrition gardens and HIV and AIDS patients have been conducted in different parts of the world showing their effectiveness. These case studies are enlightening and beneficial in this study, therefore it is important to consider a few cases:

2.2.1 CASE 1: THE UNITED STATES OF AMERICA, Oregon

A study carried out in the USA in 2009 by WHO and FAO is critical in dealing with the importance of nutrition gardens in HIV and AIDS cases. In the Oregon survey that consisted of 10 rural families, 10 peri-urban families and 10 urban families, all families headed by at least a parent living with HIV and AIDS. Of the 10 rural families, 7 participated in nutrition gardens and 3 did not. Of the 10 peri-urban families, 5 were members of nutrition garden group and the other 5 were not. Of the urban 10 families, 2 participated in nutrition garden project and 8 did not.

The survey was conducted over a period of 3 years. The rural families that were members of a nutrition garden grew mainly potatoes, beans, tomatoes, spinach, beetroot, peas, and other horticultural crops. Over the study period, the researcher established that, these families,

specifically the parents who were infected with HIV, had better health and energy than their counter parts who never had even a garden. These families could provide for all the nutrition requirements of their families without much difficulties. The other families, had more health problems and frequently visited health centres for assistance.

In peri-urban, the nutrition gardens were located in a distant place from the participants. Of the five families who were members of a nutrition garden, it was observed that only 2 families were consistent with garden programmes because of the distance. However, the 3 inconsistent participants showed that they lacked adequate nutrition as compared to their counter parts. Worse off were the other participants who never had anything to do with nutrition gardens.

Most of the urban participants did not participate in nutrition gardens. Some had challenges ranging from commitments at work to fear of stigmatisation. However, of the 2 nutrition garden members, it all showed a marked difference with their counterparts who had various reasons for not participating. They were healthier and stronger. They seldom sought medical help and they continued to work hard for their families than the non-participants who relied on more processed and junk foods.

In the American study, it was established that adequate nutrition, which is achieved through consumption of a balanced healthy diet, consisting of locally available foods and fortified food and/or micronutrient supplements when appropriately obtained from the garden is vital for the health and survival of all individuals regardless of their HIV status. According to WHO, nutrition garden support is an integral part of a comprehensive response to HIV and

AIDS, helping to maintain the immune system and sustain healthy levels of physical activity. There are well-established scientific links among poor nutrition, food insecurity and HIV and AIDS. However, the evidence base for identifying effective programming approaches is still evolving.

Conclusions and Recommendations

The American study on the impact of nutrition gardens on PLWHA made its recommendations. Among them is that of extensive education through the mass media on the importance of proper diet for PLWHA championed by working in nutrition gardens regardless of one being employed. This recommendation was after establishing that most Americans living with HIV and AIDS subsist on junk and highly processed foods which are dangerous to their health causing one of the American nightmare, obesity. The encouragement is for PLWHA to use more and more natural foods which are basically obtained such as that from nutrition gardens.

2.2.2 CASE 2: CHINA, Town of Hami

Hatloy et al (1998) conducted a study in China in a small town of Hami, near the border with Mongolia. The study was on the use of nutrition gardens and their impact to PLWHA. It was conducted in tandem with a civil society called The New Dawn of Hope. Nutrition gardens were formed by a group of HIV and Aids-affected people, led by a group of representatives from The New Dawn of Hope. It targeted households as a way of producing cheap but nutritional food whilst at the same time trying to raise funds for sustenance from

the sale of surplus produce. The gardens started operating in Nanshankou, one of the low-income areas in the town. The group has been able to galvanise communities in Hami around urban agriculture. The HIV and Aids-affected families have now been joined by other resource-poor community members who are keen to produce nutritional crops for their own consumption. The participation of other members who are not HIV- positive has removed the stigma from HIV-infected members. Other members of the community have benefited from the free lessons in nutrition offered by members of the New Dawn of Hope group. The group has also offered its services for free to people in other communities within Hami and the other surrounding villages such as Liushuquan and Qincheng who are interested in starting nutrition gardens involving the HIV and Aids house-holds in their communities. Through urban agriculture, HIV and Aids-affected families gain improved access to organically grown, nutritious and fresh food. Such commodities are available now at lower prices since transport and handling are minimal.

Conclusions and Recommendations

The Hami study made several recommendations and among them it was recommended that PLWHA should coordinate with other groups in other areas for moral support as they carry out their nutrition garden activities. Therefore, PLWHA should be organised into effective and productive groups for a healthful living.

2.2.3 CASE 3: AUSTRALIA, Birdum

A study conducted by D’Cruz (2004) in Birdum rural villages provides useful information that is worthwhile to reflect on in this empirical enquiry. The major premise of the Australian study rested on the fact that HIV and AIDS and nutrition are intimately linked and cannot be divorced when dealing with HIV and AIDS issues.

The study zeroed on a sample of 30 rural households where at least one parent was living with HIV and AIDS. The participants were drawn using purposive sampling procedure from several rural settings in Australia. Participants were very cooperative and willingly supplied the needed information to complete the study. Of the 30 participants, 22% had commercially oriented nutrition gardens while 78% had nutrition gardens specifically for consumption as a family.

The study showed that the rural households with HIV and AIDS affliction and in cultivating commercially oriented nutrition gardens adapted the structure, species composition and management of home gardens to suit their specific needs and preferences. They cultivate a dual purpose nutrition garden that supplies subsistence food and provide cash income for other needs and therefore have better food security as well as cash for other basic needs at home.

Those with strictly subsistence nutrition gardens, showed that they did not have adequate time to spend in the gardens for commercially oriented gardens because of different reasons such as work/job commitments. An analysis on the health of the two groups revealed that

those who had commercially oriented gardens lived a healthier life in that they had adequate nutrition and had surplus for selling to meet other basic needs at home. Working in the nutrition gardens also was shown to be advantageous to participants in that as they work, they engage in physical exercise which is needful in a healthful life style (Shrestha et al, 2010).

Crops grown

Most common crops grown in Birdum in nutrition gardens are rice, sweet potatoes, white potatoes and various other fruits and vegetables.

Conclusions and Recommendations

The study made several recommendations which include that PLWHA can benefit immensely by not only having nutrition gardens, but also making physical activity projects that help them to be health and physically strong.

An adequate, well-balanced diet whose affordable source is nutrition gardens is therefore an essential component of basic care for people living with HIV and AIDS.

2.2.4 CASE 4: GHANA, Kumasi City

Woodman (1996) carried out a study in the city of Kumasi in Ghana, the study compared HIV and AIDS-afflicted female-headed and dual-headed households with nutrition gardens in terms of socioeconomic characteristics with those of HIV and AIDS-afflicted female

headed and dual-headed households without nutrition gardens and portrayed biodiversity and dietary diversity for these households.

The major objectives of the household survey were quantifying the household characteristics, nutrition garden impact to the two groups of households. As a result, closed questions were asked, which made it difficult to probe into the questions of why and how. For this reason complementary qualitative in-depth interviews were held with selected case households, addressing the inherent weakness of the household survey. The results of the study showed that a lower endowment of productivity was evident in the households which did not have nutrition gardens and higher on those households with nutrition gardens. The study went on to compare the impact of nutrition gardens between female headed and dual headed households, both inflicted with HIV and AIDS. The study comprised a sample of 20 households, selected from different occupations using purposive sampling method. 5 households were female headed with nutrition gardens, 5 were female headed but did not have nutrition gardens, 5 were dual headed with nutrition gardens and 5 were dual headed without nutrition gardens.

Crops Grown

Crops grown in Ghana vary from region to region, depending on the climate of the area, culture of the people and other factors but common crops grown in the nutrition gardens include bananas, plantains, rice, corn, cassava, yams, sorghum and millet.

Fig 3: Banana crop grown in Ghana nutrition garden



Fig (iii): Banana crop grown in Ghana

Of the 5 female headed households with nutrition gardens, 4 were found out to have good nutrition and the participants maintained good health on average except one household with a participant who had challenges pertaining to using the nutrition garden which was

contested for by her late husband's brother on ownership issues. In Ghana, women have limited ability to acquire cropland through inheritance, purchases, renting or sharecropping. Women also lack financial resources to purchase cropland and certain customary laws linked to traditional and cultural norms often tend to discriminate against women. Local practices give males precedence in sharecropping contracts by land owners, as this often involves cash crop cultivation, which is considered a task too strenuous for women, the problem is even worse when a woman has become a widow. (Asenso-Okyere et al, 1993). The government of Ghana and non-governmental organisations have introduced interventions such as laws regarding inheritance and micro-credit facilities to reduce these limitations. Unfortunately these interventions are yet to be implemented in most rural areas due to the non-enforcement of the legal provisions and limited access to the interventions (Runger, 2006).

The other 5 female-headed households without nutrition gardens did show greater nutritional problems in that, participants were always sick and could not fend for themselves as well as their families. During the study, it was unfortunate that 2 of the participants passed away and the group remained with three participants, major causes of death were nutrition related to add to HIV and AIDS. This group cited challenges such as lack of time, labour and financial constraints which hindered them from engagement in nutrition garden activities.

The dual headed households with nutrition gardens fared well of all the groups. All participants of the group had good health and worked hard for their families. This was as a

result of sharing of activities or division of labour between the two parents as they all participated in the nutrition garden activities. For those who had other forms of employment, they would support the other financially to make sure the nutrition garden had enough resources such as seed, fertilisers and pesticides. When labour is fairly distributed, participants live a more healthier and longer, regardless of their HIV and AIDS cause of concern. This is consistent with the report of Loevinsohn and Gillespie (2003) who indicated that dual headed HIV and AIDS-afflicted households live a normal life when there is unity and harmony among the household members.

The last group, the dual headed households without nutrition gardens had a lot of activities not related to nutrition gardens. This caused a lot of stress on the participants as they spent more time in other activities which did not contribute meaningfully to the core needs of their condition, good nutrition. These reduced their reliance on nutrition gardens and focused on activities that are of reduced scale but that also have lower output or provide less income. However, it contradicts reports by Haddad and Gillespie (2001) that the changes in available labour in HIV and AIDS-afflicted households leads to more off-farm income activities.

Conclusions and Recommendations

The Kumasi study made some recommendations based on the outcomes of the study. It recommended that PLWHA must receive regular nutrition counseling which keeps participants informed and reminded about the benefits of diversity in the diet. The biodiversity in nutrition gardens played a significant role in contributing to the dietary diversity of HIV and AIDS-afflicted households. This reinforces the point that nutrition

gardens are a potential for household food security and dietary diversity in HIV and AIDS affliction (Gari, 2002; 2003, Abukutsa-Onyango, 2007; Faber and Van Jaarsveld, 2007).

2.2.5 CASE 5: UGANDA, City of Kampala

Of interest to consider is the Kampala study carried out by Horne in (2011) in Uganda. The research says Uganda is often cited as a success story in fighting HIV and AIDS, and the country has achieved a substantial decline in HIV and AIDS prevalence over the last decade, especially among younger population groups. However, the nutritional status of PLWHA in Uganda continues to be of concern. Effective nutritional care and support can help manage symptoms, maintain health and nutritional status, and may slow the progression of the disease. Constraints to nutritional care in Uganda include slow integration of nutrition into HIV and AIDS disease management, lack of national-level or country-specific guidance about nutrition and HIV and AIDS, lack of contextually adapted educational materials about nutrition and HIV and AIDS, and lack of training in nutrition and HIV and AIDS for home care providers and health workers.

The study focused on 20 youthful participants drawn from different walks of life. The study identified 10 participants who were members of a support group having a nutrition garden and 10 did not have any garden at all. The study found that the first group had immense benefits made available through the use of community gardens because food from the

gardens had increased effect in various aspects of physical, mental, emotional and social health. Involvement in community gardens has been significantly associated with increased consumption of fruits and vegetables and increased levels of physical activity and overall health (Litt et al., 2011; Haub, 2009). The study established that community gardens also build communities which stay together in that when a group works together in a nutrition garden, they develop better social relations and hence support one another socially and economically. They promote community efficacy in which community members are willing to look out for each other and aid when problems arise. This system of watch care was mentioned frequently by interviewees as a potential solution to many of their problems or as something they would like to see strengthened.

On the other hand, the 10 participants who did not belong to any nutrition garden group, showed signs of stress and ill health. They did not have healthy social life because they spend most of their time alone. Some said they just go to their neighbors asking for food, which is a dependence practice. Participants argued that at clinics, they only give them the pills, the medication and go home. After that, they don't look after them, to see that they get the right nutrition before they take the ART.

In contrast to food distribution programs, community gardens provide an opportunity for PLWHA to play an active role in providing for them and their families. This element of active participation may be essential in the formation of an effective nutritional intervention, because it will promote program ownership and self-efficacy to combat feelings of helplessness that are widespread among people with PLWHA. As many interviewees said,

they and their peers are not disabled in order for them to realise this and be proactive in improving their own health, programs must avoid treating beneficiaries as invalids. Additionally, as opposed to increasing obesity malnutrition, community gardens promote consumption of fruits and vegetables and have been shown to result in improvements of overall physical health.

Conclusions and Recommendations

It was recommended that PLWHA form groups in which they can interact as they share ideas and form nutrition gardens. By so doing they encourage one another, give each other the needed support. As they work in the gardens, they exercise to strengthen their bodies and get proper nutrition as well.

2.2.6 CASE 6: MALAWI (Lilongwe, Mzuzu and Zomba)

Chandy (2012) conducted a research in Malawi on the impact of garden nutrition to PLWHA. The study was carried out in three cities, Lilongwe, Mzuzu and Zomba. Chand had realised that the greater number of PLWHA in Malawi lived in towns and cities. He sought to learn how effective was nutrition gardens to PLWHA in cities. The study focused on a low cost nutrition gardening system model that provides daily food requirements for the households, produces different food crops all year round to minimise the risk of an overall crop failure. The participants were of different ages and from different backgrounds.

Lilongwe

From Lilongwe, 14 participants were sampled. They were asked to embark on nutrition gardening projects. The participants were divided into two groups, one had just two crops that they grew, cassava and tomatoes. Another grew a variety of crops such as beans, cassava, yams, peas, vegetables and nuts. The two groups worked hard in the gardens but it was established that the group that had just two crop varieties did not have good nutrition because the tomato crop was affected by red spider mites and it failed. They only remained with cassava which is a carbohydrate only. The researcher established that this group lacked good nutrition and frequently fell ill. The other group that had a variety of crops, had challenges on yams which were affected by frost and did not do well. However, an English proverb was fulfilled which says, there is beauty in variety. This group had other crops to rely on when they realised one of their crop had been affected. It was established that by the end of the study, this group had better health and could work hard for themselves as well as their families.

Mzuzu

In Mzuzu, the researcher focused on a group of PLWHA participants who grew commercial vegetables. These had only one group. This group did not have the spirit of working together. They were to work as a team to have good crops that could sustain the group. It was established that some did not do their assigned work to the group activities and this negatively affected the overall garden production of the group. Some were to water the crops on certain days but would not. This was a big challenge to the whole group because the crops suffered moisture stress more than often. Different reasons such as lack of time, domestic responsibilities, ill health and others were cited by those who failed to do their assigned work and eventually the group did not get proper nutrition from their garden.

Zomba

In Zomba, individual participants from different parts of the town formed the sample of the study. They had nutrition gardens in a small town which has very high rate of HIV infections. Participants had individual gardens where they would work individually. The research established that participants lacked education on the importance of nutrition gardens. Most participants in this town did not take growing garden crops seriously and they left the gardens to die. Consequently, the health centres in this town reported high rate of nutrition related problems of PLWHA.

Cultivation is generally intensive using plant beds and improved seeds, paying special attention to watering, manuring and disease control. Thus, there is need for thorough technical knowledge of the subject. Although community gardening and greening is often undertaken with the intention of understanding and advancing the movement, discourse among community gardening and greening practitioners, it reveal that the process often ends before findings are disseminated to them in accessible and usable ways. Some community gardening and greening lack access to community gardening and greening research and or the capacity to translate research speak into utilitarian applicable language (Tidbal, Krasney and Faurest (2009). According to Brazier (2012) schools can be an excellent venue for a nutrition garden campaign. The school garden can become a productive food source for pupils, especially in urban areas where household gardens are small or nonexistent. The nutrition garden can become a place where children can learn about the environment, nutrition and income generation. Cohen (2003) supports the above in that community or nutrition gardens should help residents and other low income consumers supplement their diets with home-grown produce. The researcher understands that the nutrition gardens are not the whole solution to food security in support to Dirorimwe (1997) who outlined that projects like expansion of irrigation schemes does not

necessarily ensure attainment of the nutritional well-being of the community concerned, but special attention must be given to the inclusion of nutrition concerns in food security programmes if communities are to attain the ultimate objective of improved wellbeing.

Conclusions and Recommendations

The Malawi study established that nutrition gardens encourage health promotion through gardening by targeting the prevention of diet related diseases such as cancer, heart disease, high blood pressure, osteoporosis and diabetes of which the gardens focus on proactive plants. Any person infected with HIV and AIDS is vulnerable to those diseases thus it is relevant to have the nutrition gardens for PLWHA.

Nutrition gardens are meant to improve the living conditions of PLWHA. Nutrition gardens are also a source of revenue as well as pleasant and instructive pastime.

It was recommended that the PLWHA grow different food crops in nutrition gardens all year round to minimise the risk of an overall crop failure. Growing one crop has challenges of crop failure in case of a crop affected by pests and drought.

The study revealed that nutrition gardens provide the so much needed nutrition and also are a steady source of income. According to the study, any good nutrition garden is harvested daily for the immediate needs of PLWHA.

2.2.7 CASE 7: SOUTH AFRICA, Rustenburg

In Rustenburg, a study on the importance of nutrition gardens on PLWHA can be helpful to reflect on in this study. The study established a number of important facts that this study recognised. In the study, it was recognised that HIV and AIDS and food and nutrition security are complex phenomena entwined in a vicious cycle. Food insecurity increases susceptibility to HIV exposure and infection, while HIV and AIDS exacerbates vulnerability to food and nutrition insecurity. On the continent, Sub-Saharan Africa is the region heavily affected by HIV and AIDS, With South Africa representing a quarter of the burden of HIV infection in the region, with an estimated 5.3 Million people living with HIV and AIDS as of 2010. In this region, women are more vulnerable to HIV infection than men and account for approximately 60% of HIV infections.

The study used a sample of participants from various walks of life in Rustenburg by means of snowball sampling procedure. It was through referrals that all the 16 participants were asked to be part of the research. The Rustenburg study did not focus on participants and their activities in the nutrition gardens directly, but was rather a unique study which used health centers around Rustenburg, finding out from the health practitioners about the PLWHA who were coping well than the rest. Out of the 6 health centres that were approached by the researcher, 16 individuals came out on top to be the ones who were adhering to proper diet that allowed ART to work effectively in their systems. When interviewed, 13 out of 16 participants concurred to the idea of having a nutrition garden that they used effectively for their basic meals at home.

Some reported that they did not have a garden at their homes but joined support groups that formed nutrition gardens where they would meet as a group, encourage one another on how best they could use the garden to live a healthy and better life in the face of their predicament, HIV and AIDS. Others still said they could not find time to join support groups of any nature but they made it a standard that they had a nutrition garden at their back yard. Interviewees underscored the need to have proper nutrition saying given their condition, they had to do everything possible to live a healthier and happy lives by ensuring they did not eat highly processed foods, but return to the basics, traditional garden nutrition.

One participant stated, "...the disease reduces available labour due to sickness, premature death or caring for the ill. Additionally, less money is available and assets are sold because of medical and funeral costs."

A health practitioner concurred to the sentiments of the participants by saying, "this reduces the household's ability to buy food. In addition, households affected by HIV and AIDS often switch to a low-labour intensive mono-crop system, producing only one crop, rather than a variety of crops, or shift from labour-intensive crops, such as vegetables, to less labour-intensive crops, such as roots. As a result, the household has less access to a variety of nutritious foods. The long-term effects of HIV and AIDS decrease the household's resilience to other shocks, thereby increasing the household's vulnerability to food insecurity. Home gardening can be part of a sustainable long-term strategy that complements household food security, nutrition education, food supplementation and food fortification interventions to address the food and nutrition needs of HIV-infected populations."

Crops Grown

The most important crop grown in South Africa is maize (corn), the staple food of most black South Africans. Other important crops include wheat, sugarcane, barley, potatoes, citrus fruit, and grapes (for winemaking). Nutrition gardens also grow most of these crops.

Fig 4: Potato crop grown in Rustenburg (S.A) nutrition garden



Fig (iv) Potato crop grown in South Africa by PLWHA

Conclusions and Recommendations

The Rustenburg study made several recommendations on the relationship between good health of PLWHA and nutrition gardens. The study recommended that consideration of the most appropriate crops for interventions encouraging own production is very important, particularly as a factor underpinning nutrition security in PLWHA. An understanding of food security emphasises the nutritional adequacy of the diet. It focuses on the need for dietary diversity and quality, including the importance of micronutrients. Mono-crop production of low nutrient content crops will not translate into food and nutrition security for PLWHA. It is important to diversify the crops to be planted, including both warm- and cool weather crops, as this will help to ensure year-round availability of food, largely through vegetables. As a result, households will have access to a greater variety of foods, which could potentially increase dietary variety and ultimately improve the nutritional adequacy of the diet.

In the South African context, the Integrated Food Security Strategy, through two of its key stakeholders, namely the Food Security Directorate of the National Department of Agriculture and the Nutrition Directorate of the National Department of Health, has implemented food-based approaches to address the food and nutrition security of vulnerable groups such as households with malnourished children and households with an HIV-infected member/s. However, despite the vast amount of resources invested in these programmes, these programmes are yet to be critically evaluated to ascertain the impact and value of backyard and community gardens, and to better understand the challenges facing them, with particular reference to HIV and AIDS and nutrition

2.2.8 CASE 8: ZIMBABWE, City of Bulawayo

Drimie (2010) carried a study in Bulawayo, Zimbabwe, on a project of nutrition gardens. The project was coordinated by the Scripture Union in the suburb of Trenance, which was meant to help provide adequate food for PLWHA. According to (Sibanda 2012), there is a link between agriculture and good health by way of nutrition. Good nutrition and good health require production of and access to sufficient nutritious foodstuffs. Low agricultural productivity exacerbates malnutrition. According to Drimie (2010), the food and nutrition strategy highlights the importance of nutritional support at family and community levels, including nutritional support to those enrolled in Anti-Retroviral Treatment (ART). The Trenance project faced a lot of challenges.

Most beneficiaries said the nutrition garden was cited in a distant place from where they lived therefore, participants found it very difficult to go to the garden as required when running such a garden. Participants also said when the project was started, it was not with due consultation with the beneficiaries. The garden started as a brain child of the Scripture Union society as they felt the participants needed a nutrition garden. However, the strategy emphasised the importance of sustainable livelihoods through access to clean water, sanitation, nutrition gardens, communal granaries and appropriate income generating activities. It also encouraged emergency assistance as a sub-strategy, which highlights the importance of providing food, care and livelihood support to most vulnerable, AIDS affected households. In the Trenance project, the plight of children affected and infected with HIV and AIDS was of particular concern. Coming from the background that over 8 million children worldwide are living with HIV. The study sought to alleviate the plight of children living with HIV by empowering the parents and guardians since children who are living in households with family members who are HIV-positive are seriously affected. Because parents are ill, have died or are caring

for ill relatives, less time is available for child-care. In many cases children themselves have to get involved in caring for the sick and dying. Also reduced financial household resources have its toll on the survival, growth and development of children. In severely affected families, there is no money to send children to school and often children have to contribute to the household income. Less income also means that less money is available for nutritious food. WFP (2008) posits that to understand the relationship between HIV and AIDS and food security, analysis should focus on the key issues that are usually considered in food security analysis such as current food consumption, dietary diversity, sources of food or food reserves.

In a separate study in Bulawayo by WHO (2016), allotment nutrition gardens were established by the city council in selected areas throughout the high-density (low-income) areas of the city such as West Park, Makokoba, Mpopoma and Mabutweni. The beneficiaries of the nutrition garden allotments were mainly HIV-affected households but also in a smaller representation were the elderly, widows and the destitute as beneficiaries of the nutrition gardens. In order to avoid the stigmatisation associated with HIV, the nutrition gardens drew from a mixed group of beneficiaries as highlighted above. The size of each allotment nutrition garden ranges from 0.42 ha to 2 ha. Treated wastewater is used for irrigation. The availability of this water tends to be erratic for various reasons including breakdown of pumps, faulty taps and vandalism of equipment. The nutrition garden allotments, which largely produce vegetables have contributed to local community development. The HIV-affected households can now have better nutrition to a certain extent and feel less discriminated against as they work with other community members in their nutrition gardens (Drimie, 2010)

Conclusions and Recommendations

It was recommended that, given the lack of medical care and drug treatment in most AIDS-affected developing countries, it is imperative that vigorous efforts to achieve and maintain good nutrition among HIV-infected people are undertaken as a matter of priority.

There is need for infrastructure refurbishment so that the irrigation pipes do not break so often

The studies also established that poor nutrition can damage the immune system and contribute to the acceleration of full-blown AIDS especially in children. In turn, HIV and AIDS itself leads to malnutrition. HIV weakens the immune system, thus compromising the body's ability to fight infections. As a result, an HIV-positive person become prone to repeated periods of prolonged illness, which reduces their appetite and interfere with the body's absorption of nutrients. Infections also increase the body's need for essential nutrients, such as those found from nutrition gardens. Many HIV-infected people are unable to meet these additional nutritional requirements and become weak and malnourished but a workable source of proper nutrition can be the use of nutrition gardens.

2.2.9 CASE 9: ZIMBABWE, City of Harare

Adiso (2013) conducted a study on the importance of nutrition garden to PLWHA was carried out in 2013 in Glen-View suburb in Harare. An analysis was carried out with stakeholders to determine the sustainability of nutrition gardens among urban households. According to respondents, nutrition gardens are socially, environmentally and economically

(SEE) sustainable since they rely on locally available materials such as leaf litter and animal manure that reduce investment and startup costs. They can also be established under scenarios of limited housing space to sustain health and food consumption needs of households with people living with HIV and AIDS. There was a readily available market particularly for herbs in the local community. Opportunities for commercialising nutrition gardens exist if local institutions such as schools and other public oriented institutions get involved. The main weakness was limited funding that constrained training of new households in the concept. The SWOT analysis of the study revealed the following:

Strengths:

- Uses locally available material (cheap)
- Grow herbal plants which are both of nutritional and medicinal value
- Uses family labour including the primary caregiver who also benefits from the garden.
- Information diffusion within the community

Weaknesses:

- Need for continuous training for new beneficiaries
- Relies heavily on secondary caregivers
- Only produces for self-consumption

Opportunities:

- It has locally available market for produce
- It can expand into schools and community centers
- Group focused gardens are quite possible
- Manure from local dumping sites contributes to environmental sustainability

Threats:

- Shortage of land and water storage facilities
- Limited financial support

Fig 5: Some vegetable crops grown in Harare nutrition garden



Fig (v): Child of a parent who is a garden participant in Harare holding vegetables

The observations showed that a diversity of crops and herbs were grown by the HIV and AIDS infected and affected families. However, most of the crops were exotic at the exclusion of indigenous vegetables and herbs that are more adaptable to the local environment. This is attributed to little documentation and lack of research on how to grow specific indigenous vegetables and herbs. According to Marsh (1998), local wild and adapted species should be the first plants to introduce into permaculture nutrition gardens, especially since it is easy to collect seeds without disturbing the wild populations.

Respondents noted that herbs played a key positive role to health through reduction in the incidence of opportunistic infections associated with HIV and AIDS and thus saving on medical costs. These observations were underscored by Adiso (2013) who noted that home gardens can help provide variety in the diet and supply vital vitamins and minerals, carbohydrates and proteins and helping to improve family health. Since most urban households were not formally employed, they have to rely on self-help projects such as gardening in order to cater for the nutritional needs and health of the family.

Conclusions and Recommendations

The Glen-View study established that low input nutrition gardens increased the range of vegetables and herbs available to households with people living with HIV and AIDS, improved their health and also reduced medical costs associated with the need to seek treatment from opportunistic infections. Thus they should be considered integral to the livelihoods of HIV and AIDS infected and affected household in a context characterised by prohibitive costs of acquiring food and medication. Long-term sustainability can be ensured if appropriate training in organic based pest and disease management and processing of composts as a form of fertiliser are conducted. Expansion prospects can also be achieved through linkages with local institutions such as schools and other centers to establish community nutrition gardens for the benefit of urban households. This can be facilitated if indigenous approaches to HIV and AIDS management are effectively taken into account by the HIV and AIDS policy makers.

2.2.10 STAKEHOLDER COLLABORATION

Stakeholder collaboration is of great importance in dealing with nutrition issues of PLWHA. Every interested party needs to do their rightful part or should honor their responsibilities and obligations. Common stakeholders include PLWHA, city councils, governments and NGOs.

2.2.10.1 People Living With HIV and AIDS (PLWHA)

The primary beneficiaries of the nutrition garden programmes in this study are the PLWHA. These need to do their part on the issue of collaboration in trying to mitigate the impact of nutrition gardens on their livelihoods. It is expected that the PLWHA adhere to the laid down plan of action in order to meet the stated objectives of such an endeavour like preparing their planting places according to instruction, using the right tools, watering crops in time, using the correct seeds and pesticides for desired results.

2.2.10.2 City Councils

Most studies have shown that a significant number of PLWHA live in urban areas. The city councils are responsible for land use in urban centres and other semi urban areas. These can give allocations of land to PLWHA for their nutrition garden activities. Councils also have health centres that provide medical and counselling services to PLWHA, this means that councils are an important stakeholder in the fight against challenges that bedevil PLWHA which include nutrition needs. It is expected that the city councils play their role of helping the PLWHA in allocating them land for nutrition gardens. This will go a long way in reducing health related costs when the PLWHA have better health due to proper nutrition.

2.2.10.3 Governments

Governments suffer the heaviest burden in the problems faced by the PLWHA. The Ministries of Health and Child Welfare and Social welfare services have the responsibility of ensuring that PLWHA have the basic health services as well as other social needs such as their clothing, education and accommodation. Some of the challenges include sourcing for medication, ensuring that these people get adequate food and other needs, which can be costly to the governments. It is important that the governments provide the infrastructure for the PLWHA to start nutrition gardens. Another important input that governments can do is to subsidise services given to PLWHA so that they can afford to reach out to life serving services such as accessing medication and food supplements. Governments also need to provide considerate policy framework and have a conducive political environment that is accommodative of the plight of PLWHA.

2.2.10.4 NGOs

NGOs play a critical role in the fight against challenges faced by PLWHA. NGOs complement government's efforts in various ways to mitigate HIV and AIDS related problems such as programme planning and implementation, resource mobilisation, infrastructure construction, programme management and human rights awareness campaigns. It is important that NGOs complement governments' efforts in the issues that concern PLWHA. The government also should allow the NGOs to do their duties without any form of duress or unnecessary interference.

2.2.11 PROBLEM SITUATION

The nutrition problem in Mutare North for PLWHA may not be identical to, but have certain similarities to some cases presented above, however certain lessons can be learnt from how others dealt with related problems. In Mutare North, beneficiaries of nutrition gardens are not reaping the intended benefits of having the gardens. Some do not go to nurture their crops at all, others even give the garden portions to relatives and friends to use them and even ask them for a payback for using their gardens. The beneficiaries, or the intended beneficiaries fall ill many times over due to lack of proper nutrition, some have a number of dependents whom they eventually fail to look after and they end up being destitute. Other intended beneficiaries end up begging in the streets, becoming street mothers and fathers but nutrition gardens could easily answer many of their questions and solve the complex puzzle of their unfortunate condition.

2.3 SUMMARY

This chapter dealt with nutrition issues of the PLWHA in different places around the world. Highlighted are nutrition gardens and what they are expected to produce for PLWHA, case studies on nutrition gardens for the PLWHA in several countries and conclusion and recommendations reached in the previous studies. Also addressed in the chapter is the importance of stakeholder co-operation in dealing with nutrition gardens for PLWHA. The following chapter is chapter 3 which deals with methodology.

CHAPTER 3

RESEARCH METHODOLOGY

3.0 INTRODUCTION

This chapter presents the general approach and specific techniques adopted to address the objectives of the research. It begins with a discussion of the epistemological underpinnings of quantitative and qualitative research. The chapter presents the research design and the methods used in the selection of the population and sample for data collection. The chapter also discusses the instruments of data collection to be used which are questionnaires, interviews and observations and their relevance to the study. It concludes with a look at the limitations of the methodology employed to conduct the study.

3.1 RESEARCH DESIGN

According to Robson (2012), a design is concerned with turning a research question into a project that can be carried out to give a precise, fair and clear picture of what the research is all about. Boyer (2010) describes a research design as a systematic and objective analysis of a recorded and controlled observation that may lead to the development of generalisations, principles or theories resulting in likely events and possibly ultimate control of events. A research design is said to be precise, fair and simple to understand if it observes phenomena with which the researcher discerns as satisfactory.

3.1.1 Descriptive Survey

The researcher will use a descriptive survey which is a deliberate arrangement of conditions for analysis and collection of data in a way that pertains to the research. The descriptive survey was used because it describes situations as they are in terms of conditions. Shuval et al (1986) suggest that a descriptive survey is concerned with conditions that are held, processes that are going on, effects that are evident and trends that are developing. In this study, the descriptive survey was used because nutrition garden activities fall within this bracket of ongoing process as PLWHA conduct their activities in the garden.

A descriptive research does not fit perfectly into the definition of either quantitative or qualitative research methodologies, but instead it can make use of attributes of both within the same study. A descriptive research can be either quantitative or qualitative. It can involve collection of quantitative information that can be tabulated along a continuum in numerical form, such as scores on a test. The varied nature of the data required and different sources from which they are to be collected and this made the mixed methods approach very opportune in this research. In line with this methodological approach, research implements associated with both quantitative and qualitative approaches were carefully selected to collect data. These are interviews, questionnaires and observations. The use of the mixed methods approach was necessitated by a number of reasons such as to achieve the logic of triangulation. Robson (2012) states that triangulation is critical to use since no single method such as questionnaire or interview could thoroughly capture all the important features of the study. More so, the use of qualitative and quantitative methods will enable the researcher to crosscheck the data to be collected by different methods, hence, making the results of the study more valid and credible.

As observed by Fobil (2001), combining different methodologies in a single study enhances the researcher's claim for the validity of conclusions if they can be shown to provide mutual affirmation.

The use of the combination method in this research was appropriate since data collected from respondents was discrete, continuous, numerical and factual. Data collected from Mutare North nutrition garden stakeholders consisted of figures, for instance, the number of times participants went to the gardens per week. Another form of data is descriptive in that the researcher required respondents to explain why they behave the way they do in relation to nutrition garden activities. This varying data types was only understood in their proper manner by using the mixed approach design.

In this study, the descriptive survey gave the researcher the opportunity to utilise both quantitative and qualitative data in order to find data and characteristics about the population and the phenomenon under study. The advantages of the descriptive research include data collection and life experiences. Combining qualitative and quantitative methods in the present study made it possible for the issues relating to nutrition gardens and PLWHA in Mutare North to be captured from participants in the perspective of key stakeholders in the garden nutrition sector as well as of the researcher's.

The researcher used a descriptive survey because it had the propensity to give statistical information about events as well as conceptions about how people experience events and their world. Another advantage of descriptive survey is the unique data collection form of case studies. These case data can be collected from individuals' personal accounts or from documented data such as newspaper reports or minutes from official meetings. This data

collection sanctions descriptive survey to provide insights into life experiences and behaviour in a way that no other research methods can. A descriptive survey abstracts barriers of thorough academic approaches so that the researcher can witness how others experience events. It is on this foundation that the researcher used the descriptive survey to carry out a study on the impact of nutrition gardens to PLWHA in Mutare North.

3.2 POPULATION AND SAMPLE

Every scientific enquiry must have a population and a sample on which the research is carried out. The population and the sample are mutually related.

3.2.1 Population

A research population is a collection of individuals or objects that become the main focus of a scientific query. It is for the benefit of the population that researches are done. Fobil (2001) posits out that a research population is also known as a well-defined collection of individuals or objects known to have homogeneous characteristics. All individuals or objects within a certain population have a common, binding characteristic or trait. According to Oteng (2009) a targeted population includes a group of individuals with one or more characteristic in prevalence. In that sense, a population is the total number of elements or cases that one wants to investigate.

In the current study, the population is the 200 participants in nutrition gardens for PLWHA in Mutare North, according to statistics provided by Mutare city council and NGOs plus 10 officials from the NGOs and health institutions, making a total of 210. It is not uncommon to find more than one person from a family affected by HIV/AIDS participating in these nutrition gardens.

The 200 garden participants may have varied behaviour in relation to nutrition garden activities but these have common characteristics in that they all live in Mutare North, they are all members of nutrition gardens for PLWHA. Another common feature on this population is that they are all in one way or another affected and or infected with HIV.

3.2.2 Sample

A sample is a subset of the population. The concept of sample arises from the inability of the researchers to test all the individuals in a given population due to various reasons which include prohibitive costs and inadequate time and the feasibility of carrying out a study on a large population. Therefore, a sample must be representative of the population from which it will be drawn and it must have a good size to warrant statistical analysis (Post et al, 2003). The main function of the sample is to sanction the researcher to conduct the study to individuals or elements from the population so that the results of the study can be used to derive conclusions that will apply to the entire population or to provide conclusions that can be generalised to the rest of the population. It is much homogeneous to a give-and-take process.

The researcher used 20% of the 200 nutrition garden participants as a sample. Therefore, 20% of 200 is 40 participants and these formed the sample. To get the 40 actual participants as the sample, the researcher gave the population of 200 garden participants numbers from 1 to 200. Of the 200 numbered cards, only 40 had a green 'Y', representing the ones which were chosen to make the sample and the other 160 numbered cards had a red 'X' representing the ones who were not chosen. The 200 cards were put in a container and mixed then randomly allowed the nutrition garden population to draw a card of choice from the container one after another. The

sample also included 10 city council employees, health personnel (nurses), NGO facilitators, these were selected purposively.

3.2.3 Sampling Techniques

Sampling techniques are grouped into two and these are the probability and non-probability sampling techniques. The Orangi Pilot Project (1995) describes probability as a chance of any element being included in the sample and is known to be with equal chance like any other element of being selected. In this study, the researcher used both probability and non-probability sampling techniques. The probability sampling was used on selecting nutrition garden participants by means of drawing a card of choice by each member. This provided an equal opportunity to all participants to be chosen into the sample.

In non-probability sampling, no scientific elements associated with the selection of the study objects to make up the sample are collected (Muller and Hoffman 2001). The authors go on to state that in non-probability sampling, convenience or purposive sampling can be utilised. The convenience or purposive sampling make no precedence of being representative of a population. The authors additionally say it takes units as they arrive on the scene or as they are represented to the researcher.

In this research, the researcher used simple random sampling and purposive techniques to select the sample. The reason for using simple random sampling technique is that nutrition garden activities for PLWHA in Mutare North seem to take a pattern that is similar throughout Mutare North, therefore a random selection of participants in this research is representative of the rest of the participants forming the population. To get the 40 actual participants as the sample, the

researcher gave the population of 200 garden participants numbers from 1 to 200. Of the 200 numbered cards, only 40 had a green 'Y', representing the ones which were chosen to make the sample and the other 160 numbered cards had a red 'X' representing the ones who were not chosen. The 200 cards were put in a container and mixed then randomly allowed the nutrition garden population to draw a card of choice from the container one after another. The sample also included 10 city council employees, health personnel (nurses), NGO facilitators, these were selected purposively.

Purposive sampling was used on the director of Health in Mutare city council as top management, nurses at city council clinic in Sakubva and St Joseph's Mission Hospital and NGO representatives who deal with the participants in the nutrition garden activities. This technique was useful here since these council and health personnel provided useful information on nutritional problems of the PLWHA in Mutare North. Purposive sampling was also used on NGOs who are specifically working with the PLWHA in Mutare North because they are the ones who could provide the needed information on how these participants are behaving in relation to the nutrition gardens and how useful the gardens are to participants.

3.3 RESEARCH INSTRUMENTS

Research instruments are implements utilised by researchers to capture data during a research. These include questionnaires, interviews, surveys and observations. The researcher used questionnaires, interviews and observations as research instruments. The researcher utilised interviews to collect information from Mutare city council officials and nurses.

Interviews were appropriate to use here because there was need for probing and elucidation on issues pertaining to nutrition issues of PLWHA. Questionnaires were designed for Mutare city council personnel. The researcher additionally used total observation technique to collect information on Mutare North nutrition garden participants. This was important to reduce or eliminate the Hawthorn effect on participants. Hawthorn effect makes the participants change their department when they know or suspect they are being observed. Observations were also of paramount importance here because not all information or authentic facts could be obtained by use of questionnaires and interviews since respondents may willfully give erroneous information or withhold known facts.

In addition, the researcher also employed the use of interviews especially on the management of Mutare city council and NGO facilitators for demystification of possibly sensitive issues concerning nutrition gardens for the PLWHA and their impact, this was vital to get to the roots of the authentic causes of ineffectiveness of nutrition gardens for PLWHA in Mutare North.

3.3.1 Questionnaires

The questionnaire is one of the most widely used instruments for collecting data in survey researches. Andrew (2000) suggests that the appeal of the questionnaire partly stems from its cheapness and expeditiousness in terms of administration, the absence of the interviewer effect and its convenience for correspondence. The researcher designed questionnaires for the relevant respondents with similar characteristics and distributed them to the participants. For Mutare city council, the researcher gave a questionnaire to the Health Director of Mutare city council; and to health personnel at Sakubva clinic and at St Joseph's Mission Hospital.

Some questionnaires for garden participants were written in *Shona*, a vernacular language that most of them can understand and some were in English, for those who are literate in English.

3.3.1.1 Merits of Questionnaires

Advantages of using questionnaires include collecting data in a uniform format which is easy to analyse. If properly prepared and administered, questionnaires are easy to understand and simple to answer so much that there will be no need for further probing and clarification of issues. In addition, respondents will be free to answer the questionnaires in the absence of the researcher and at their own time.

Questionnaires also have the advantage of taking it to a wider audience compared to interviews. The researcher can administer questionnaires to a widely spaced audience or participants.

3.3.1.2 Demerits of Questionnaires

Using questionnaires for data collection have some disadvantages too. One of the problem is that they cannot be customised to individuals as it is possible with other methods of data collection such as interviews. They carry uniform and rigid questions.

Questionnaires do not offer the respondents more information were there may be need of clarification, one will end up just responding to questions even if they do not clearly understand. Questionnaires also do not cater for the illiterate, among the respondents, some could have challenges in reading and writing and end up throwing the questionnaires away, leading to low return rate of questionnaires.

3.3.1.2.1 Types of questions

In this research, the researcher employed different types of questions so as to obtain useful information from the nutrition garden participants or the sample.

3.3.1.2.2 Open- ended/ Divergent questions

These type of questions were described by Watt et al (1996) as a set of questions that require the respondents to exercise their right to present their opinion, views, suggestions or conclusive ideas to a given scenario. The authors argue that open-ended questions are best used where the researcher needs explicit divergence and exploration of mind towards the area of study. To respond to a divergent question, a respondent must be able to recall some information from memory, but must apply that knowledge and other knowledge to explain, extrapolate or further analyse a topic, situation or problem. Divergent questions are broader in nature, can have multiple answers, and require a higher level or order of the respondent's thinking. An example of a divergent question is 'how does a snake survive in the desert?'

Advantages of using open-ended questions include giving room for open expression of one's mind, the questions provide the bases for actual conclusive answers to the research, they also reduce the element of bias, which are mostly found on leading questions that require a yes, or no answer.

3.3.1.2.3 Closed/ Convergent questions

Convergent questions, also known as closed questions are those questions with limits placed on the response to be given to them. A convergent question by its nature has a more

narrowly defined correct answer, the answer is generally short, requires little reflection and requires that the respondent recall from memory a bit of factual information. Using the previously cited example of a snake living in the desert, an example of a convergent question can be ‘does a snake survive in a desert?’ The question requires a simple ‘yes’ or ‘no’ answer (Watt et al, 1996).

In this study, the researcher used both open-ended and closed-ended questions. Closed-ended questions have an advantage of allowing quick response, easy to understand and have little chances of misunderstanding the meaning intended by the respondent. Open-ended questions were used on the part of the sample chosen purposively. They were useful in this group since detailed information was required on the subject under study.

3.3.2 Interviews

Interviewing is a subsidiary way of collecting qualitative data because the technique is introspective and sanctions respondents to report on themselves, their views, their credences, practices, interactions and concerns (Vogler 1983).

Most people are more disposed to express themselves in an interview than the case would be if they were asked to write or fill out a questionnaire (Robson, 1993). A personal interview is a two-way conversation initiated by an interviewer to obtain information from the respondent.

3.3.2.1 Merits of Interviews

The greatest value of an interview lies in the depth of information and detail that can be secured. It far exceeds the information secured from telephone and self-administered studies

via intercepts and surveys. Interviews have the propensity to sanction the researcher to obtain direct answers from the people and seek relevant answers from them. In the interviews conducted, the researcher could note conditions of the interview, probe with additional questions and collect supplemental information through observations to solicit more information. The researcher organised interviews with the Health Director of Mutare city council and health personnel to further amass and synthesise relevant data on the subject matter.

The researcher used interviews on the Mutare city council health director because there was need of probing for additional information, which could not be done using other research instruments such as questionnaires.

3.3.2.2 Demerits of Interviews

Some disadvantages of using interviews for data collection are that interviews are time consuming on the part of the researcher because one has to be in a particular place and time. If there are many people to be interviewed, then the process of data collection will take longer.

Interviews require proper venues to collect data, this is expensive to the researcher especially if the researcher is to organise the interview venue. On the issue of cost, interviewees may also need to be transported to the interview venue if it is cited in a distant location.

3.3.3 Observations

According to Coffey (1996), observations are a form of evidence that do not depend on verbal department, and the method enables the investigator to observe the phenomenon under study

directly. Dulac (2001) categorises observations into unobtrusive and participant observations based on the degree of participation by the researcher, and into covert and overt observations based on the level of awareness that subjects have of being observed.

The phenomenon under study, impact of nutrition gardens on PLWHA, is one which lends itself to direct field observation. Thus, in addition to questionnaires and interviews, the researcher also conducted field observations as part of data collection exercise. The researcher also made observations on how garden participants behave when they do garden activities. The researcher became unobtrusive observer in 3 strategic points close to 3 nutrition gardens in Mutare North at different times.

3.3.3.1 Merits of Observations

The advantages of observation is that it does not rely on respondents' willingness to give or withhold information on how they do their nutrition garden activities. Observations also evade the challenges posed by the Hawthorn effect when complete observation is used.

For this reason, the researcher decided to use observations on garden activities by PLWHA as well as on NGO representatives and how they interacted with garden participants.

3.3.3.2 Demerits of Observations

Observations can have demerits in data collection especially in participant observation which involves the research also being a participant in activities done by the subjects under study. This happens when dealing with human subjects and when they become suspicious of the intentions of the researcher. It leads to some subjects withholding the needed information or giving misleading information to the researcher.

3.4 ETHICAL CONSIDERATIONS

Ethics have become a cornerstone for conducting effective and meaningful research. Ethical considerations are an accumulation of values and principles that address questions of what is good or bad in human affairs. Ethics search for reasons for acting or refraining from acting; for approving or not approving conduct; for believing or denying something about virtuous or vicious conduct or good or evil rules (Fost, 1998).

Bulger, (2002) says ethical considerations in research are critical. Ethics are the norms or standards for conduct that distinguish between right and wrong. They help to determine the difference between acceptable and unacceptable behaviors.

3.4.1 Participation

Participation in the research was voluntary and participants are free to withdraw from the research once it has started. This was explained in vernacular language to participants while asking for their participation.

3.4.2 Confidentiality

American Psychological Association (2002) says the ethical consideration of confidentiality requires that the researcher makes sure that participants are assured that identifying information will not be made available to anyone who is not directly involved in the

study. All data collected was treated confidentially in this study, the researcher did not disclose any confidential information to other persons without any permission. All data collected was used solely for the purpose of this research, nothing more and less.

3.4.3 Informed Consent

The ethical consideration of informed consent means that prospective research participants must be fully informed about the procedures and risks involved in research and must give their consent to participate. In the current research, participants were asked for their consent and agreed. Informed consent was sought before participation in research. Consent was sought freely, without undue inducement or pressure or duress. Participants were free to withdraw their consent at any time without any penalty or prejudice. Consent was sought by signing an informed consent form which clearly stated the implications of partaking in the research as well as the potential benefits derived from taking part (American Psychological Association, 2010).

3.4.4 Privacy

Bartholome (1996) notes that privacy requires the researcher to conduct programmes such as interviews in a secure and private venue where no prying eyes and ears can have access. In this study, the ethical consideration of privacy was adhered to, for example when interviews were conducted with Mutare city council officials, the researcher ensured that the venue did not allow unwanted ears and eyes to have access to proceedings in the interview room.

3.4.5 Anonymity

The anonymity and privacy of those who participate in the research process should be respected. Personal information concerning research participants should be kept confidential. In some

cases it may be necessary to decide whether it is proper or appropriate even to record certain kinds of sensitive information. Anonymity is the process of not disclosing the identity of a research participant, or the author of a particular view or opinion (Bulger, 2002).

Macklin (2001) posits that anonymity involves not revealing actual identity of participants for their security and protection of their reputation. The current study lends itself in those studies which need maximum anonymity considerations in that it deals with PLWHA, some of whom do not want their identities to be revealed without their concerns. In this study the researcher did not reveal any identity of participants to anyone, anonymity was upheld to protect the images, reputation and identity of participants.

3.4.6 Protection from Harm

When conducting research especially on human subjects, researchers must avoid or minimize harms and risks and maximize benefits; respect human dignity, take special precautions with vulnerable populations; and strive to distribute the benefits and burdens of research fairly. The no harm principle was adhered to during the data collection period. Respondents were treated with respect and dignity throughout the study. No one reported of being harmed or injured in theory and practice (Miller and Selgelid 2008).

3.4.7 No Plagiarism

Plagiarism is the act of taking another person's writing, conversation, song, or even idea and passing it off as one's own. This includes information from web pages, books, songs, television shows, email messages, interviews, articles, artworks or any other medium. Whenever one paraphrases, summarises, or takes words, phrases, or sentences from another person's work, it is necessary to indicate the source of the information within one's paper using an internal citation.

In this regard, the information used in this study was the researcher's origination where citation is not given, but for all data that was borrowed from the works of other people, the researcher rightfully cited the relevant authorities and acknowledged their works in the reference section.

3.4.8 Honesty

Nelson (2010) opines that when conducting scientific enquiry, researchers are expected to be very honest, especially when they are dealing with human subjects. One should strive for honesty in all scientific communications. One must honestly report data, results, methods and procedures and publication status. It is unethical to fabricate, falsify, or misrepresent data. One should not deceive colleagues, research participants, sponsors or the public. It was in regard of this consideration that in the current research, participants were not lied to, everything was put so clearly and as truthfully as possible for everyone who participated.

3.4.9 Deception

Research deception involves an intentional misrepresentation of facts related to the purpose, nature, or consequences of an investigation. In this context, deception refers to either an intentional omission or a commission on the part of the researcher in terms of interactions with participants. An omission deception could mean that the investigator does not fully inform participants about important aspects of the study. Part or all of the information is withheld. A commission involves a situation in which the researcher gives false information about the investigation, either partially or totally. In the current study, the researcher made efforts not to deceive the participants in the study.

3.5 DATA COLLECTION PROCEDURES

Leedy (1997) expresses that data are those facts that any particular situation gives information or impression to an observer. He goes on to describe data as merely representative of the truth, and it involves collection of observations related to a given set of variables.

3.5.1 Data Organising

When conducting any study, it is important to organise data. The process of organising data involves scanning, arranging and sifting of data (Coffey, 1996). When data has been arranged sifted or scanned, it will be easy to use relevant data to present it through tables, charts, graphs and even text.

3.5.2 Types of Data

Various sources of data can be used by researchers. Primary and secondary sources of data collection were employed in data collection. The study utilised three sources of primary data accumulation. These include interviews, questionnaires and observations. The methodological technique used was based on the fact that multiple sources of evidence are the way to ascertain construct validity in any given enquiry. The presentation of the primary data included interviews and observations. Firstly, primary data was acquired by means of interviews because interviews are the first possible way of obtaining information from people with knowledge about their circumstances. For example, the circumstances and behaviour of nutrition garden participants in Mutare North.

3.5.3 Procedure

The researcher acquired a letter from the department of Adult education At Midlands State University. This letter served to show some authorities whom the researcher approached seeking for permission to carry out the study in Mutare.

The researcher approached the Mutare city council for permission to carry out the study in Mutare North. The researcher also took the letter to the respective NGOs dealing with PLWHA in nutrition gardens, where permission was granted.

Interviews and questionnaires were arranged and administered to council personnel, NGO personnel and health personnel. The researcher arranged for the interviews with the relevant authorities and the interviews were conducted. Questionnaires were designed and administered to the nutrition garden participants. The respondents remained with the questionnaires for filling for 7 days. This accorded the respondents adequate time to fill in the questionnaires. After the 7 days, the researcher collected the filled in questionnaires.

Observations were done on the nutrition garden participants or beneficiaries on how they frequently go to the nutrition gardens and the activities that they carry out once they get at the gardens once a week.

3.6 DATA ANALYSIS PLAN

An important aspect of data analysis plan is the search for meaning through direct interpretation of what is observed by the researcher as well as what is experienced and

reported by the subjects. Bogdan and Biklen (2003) say data analysis plan is setting out how to work with the data, organising them, breaking them into manageable units, coding them, synthesising them and searching for patterns. The aim of data analysis plan is to discover patterns, concepts, themes and meanings. In this study, data analysis will be done by means of tables and charts.

3.6.1 Data Analysis

Data analysis involves evaluation and reporting what the data denotes after presenting it through the different forms. Narrative descriptions will be analysed in relation to given circumstances and relationships. Tables will be used because they condense numerical data and thus making it easier to understand. Graphs will also be used because they give a pictorial appeal which make them easy to understand and compare. Descriptive data collected will be linked to statistical data so as to reveal the impact of nutrition gardens to the PLWHA in Mutare North.

Collected data will be grouped according to theme, for example data dealing with the number of times participants water their crops per week as well as the number of times they get some harvest from the garden, this will be presented and analysed simultaneously because they form a congruous theme.

3.6.2 Descriptive data analysis

The researcher will use a descriptive data analysis. Descriptive analysis endeavours to describe, expound and interpret conditions of the present, which is “what is.” The purpose of

a descriptive analysis is to examine a phenomenon that is occurring at a particular place or places and time. It is concerned with conditions, trends that are evident, practices, structures, opinions held, processes that are going on, differences or relationships that exist between variables.

In this study, the researcher will analyse the relationships that exist between variables in nutrition gardens for PLWHA. These variables include the availability of nutrition gardens, the nature of nutrition gardens, their proximity to beneficiaries, availability of garden implements, education (awareness programmes) and the general health of participants.

3.6.3 Causal Comparative Research

There exist variants of descriptive data analysis, but in particular, the researcher made use of the causal comparative analysis. It is a type of descriptive research which describes conditions that already exist. Causal-comparative studies endeavour to identify cause-effect relationships.

The causal-comparative method commences with an effect and seeks possible causes; hence the researcher utilised this branch of descriptive data analysis paying particular attention to the effects of ineffectiveness of nutrition gardens for PLWHA in Mutare North first, then to the causes of the ineffectiveness of this intervention.

To accomplish this, the researcher will analyse the impact of nutrition gardens to PLWHA in Mutare North, which have shown that they are, to larger extent, ineffective. This condition obviously has a cause, hence the researcher sought to unearth the possible causes, effects and suggest possible solutions to mitigate the negative impact.

3.7 SUMMARY

The chapter covered the research design that was used in carrying out the research study. The descriptive survey, which allows the use of qualitative and quantitative research techniques, was used because the two research techniques complement each other. The chapter also explained the targeted population; sample used and sample size as well as the sampling procedure. The sampling methods used however, are both probability and non-probability sampling techniques because simple random sampling was used as well as purposive sampling. Research instruments used are questionnaires, interviews and observations. Advantages of utilising such instruments were highlighted. The data collecting procedures then followed and was expounded on. The next chapter is chapter 4 and it presents data in charts, diagrams, tables and text. The analysis of the data will also be done in the chapter giving the findings that are then used for conclusions and recommendations in Chapter five.

CHAPTER 4

DATA ANALYSIS, PRESENTATION AND DISCUSSION

4.0 INTRODUCTION

This chapter deals with data presentation, data analysis and discussion. Data will be presented in form of tables, bar graphs, pie charts, line graphs and narrative text. According to Ayle (1999) when data is accumulated it does not designate anything, unless data is organised, arranged and presented in a manner opportune for assessment, analysis and evaluation.

4.1 PRESENTATION AND ANALYSIS OF FINDINGS

Table 1.1 Total Distribution of Research instruments on the research subjects.

RESPONDENT	QUESTIONNAIRE		INTERVIEW	OBSERVATION	TOTAL
		Returned			
Garden Participants	40	39	10	6	95
City Council Management	0	0	2	0	2
NGO Representatives	2	2	1	4	9
Nurses	3	3	3	0	9

Total	45	44	16	10	115
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The distribution table above shows that 40 questionnaires were distributed to nutrition garden participants. Of the 40 questionnaires, 39 were filled and returned successfully. There were interviews with 10 nutrition garden participants. However, 6 observations were successfully carried out on nutrition garden participants as they came for their garden activities on three different locations and at different times.

The table also shows that there were no questionnaires given to Mutare city council. Two interviews were successfully conducted with city council officials but there were no observations on these officials.

The table shows that 2 questionnaires were also administered to NGO representatives. All of them were filled and returned successfully. Also shown on the table is that 1 interview was conducted with an NGO representative and 4 observations were made at 2 different sites at different times.

The table shows that 3 nurses were given questionnaires and all of them were filled in and returned successfully while. 3 interviews were also conducted with nurses successfully but there were no observations on health officials.

The presentation above negate the ones of a study conducted in Australia by D’Cruz (2004), which specifically looked at the PLWHA in the rural set up. The current study considered urban dwellers of Mutare North.

4.1.1 GENDER AND AGES OF NUTRITION GARDEN PARTICIPANTS

Table 1.2 Ages of Garden Participants

GENDER	10-18 YEARS	19-30 YEARS	31 and ABOVE
MALE	1	5	13
FEMALE	2	7	22

The table above shows the ages and gender of garden participants. On the 10 to 18 group there are only 2 females and 1 male. On the 19 to 30 years group there are 5 males and 7 females and on the 31 and above years there are 13 males and 22 females.

The above presentation shows that there are more adult participants in this study than youthful ones, which is not the case with the Ugandan study which was conducted by Horne in 2011. The Ugandan study used a sample of 20 youths.

4.1.2 RETURN RATE OF RESEARCH TOOLS

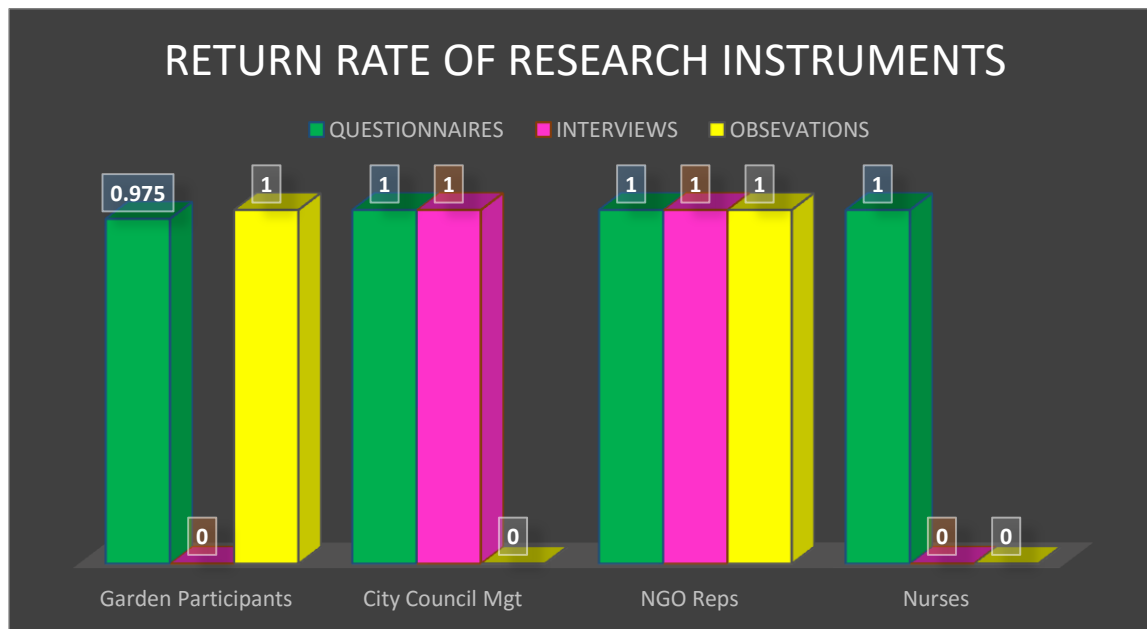


Fig (vi)

Return rate of research instruments

The bar graph above shows that the return rate of questionnaires on the targeted groups was 100%. The other instruments used such as interviews were also equally successfully conducted with the interviewees giving a high confident level for the outcome of the required information. Also successful were all observations carried on nutrition garden participants as well as NGO representatives. There were no interviews on garden participants and observations were not done

on nurses and city council officials. Questionnaires given to garden participants had a 97.75% return rate.

4.1.3 TIME SPENT BY NGO REPRESENTATIVES AT GARDENS

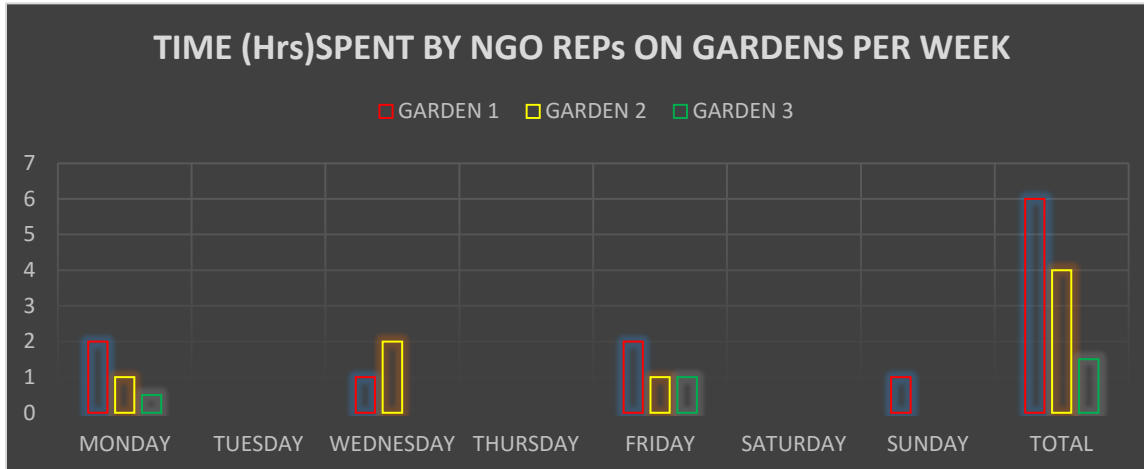


Fig (vii)

Observations on NGO Representatives activities at the gardens

The graph above shows that NGO representatives have a schedule of going to nutrition gardens so that they can help the participants doing some work there. The graph indicates that there are 4 days in a week when the NGO representatives go to gardens, the days are Monday, Wednesday, Friday and Sunday. The researcher observed 3 nutrition gardens on different occasions. At garden 1, the NGO representative spent 2 hours on Monday, 1 hour on Wednesday, 2 hours on Friday and 1 hour on Sunday, giving a total of 6 hour per week. At garden 2, observations were not identical to the first garden, the NGO rep spent 1 hour on Monday, 2hours on Wednesday, 1 hour on Friday and no one came on Sunday, giving a total of 4hours per week. At garden 3 the

NGO representative spent 30minutes on Monday, did not go at all on Wednesday, 1 hour on Friday and did not go on Sunday.

Table 1.3 Questionnaire response by garden participants and NGO representatives

GARDEN PARTICIPANTS			NGO REPRESENTATIVES		
Total (40 respondents)			Total (2 respondents)		
QUESTION	YES	NO	QUESTION	YES	NO
Are you a member of nutrition garden for PLWHA	39	0	Are you an employee of any NGO participating in nutrition gardens for PLWHA	2	0
Do you go to the garden at the prescribed schedule?	22	17	Do you go to nutrition gardens to help gardens participants with their activities?	2	0
Is the nutrition garden work heavy?	28	11	Do you have laid out programmes and activities for garden participants?	2	0
Do you have other people who help you to do the work in the garden?	12	27	Do the garden participants come at prescribed schedules to the nutrition gardens?	0	2
Do you pay any money to NGOs for what they do for you?	0	39	Do you charge garden participants any money for your service?	0	2
Do you have easy access to water for irrigation?	13	26	Is your organisation doing its best to assist the garden participants at the gardens?	1	1
Do you have enough supply of input materials for your garden activities?	2	37	Can your organisation do better than what they are in helping the garden participants?	2	0
Is the garden that you go to near where you stay?	5	34	Do you have transport to move around the gardens?	1	1
Do you have enough implements to use at the garden?	9	30	Does your company give you enough resources to assist nutrition garden participants?	1	1
Do you always have NGO reps with you when you come to the gardens?	0	39	Do you continue to assist garden participants all the time?	0	2
Do you have a market for your excess produce?	10	29	Do you organise any market for those participants who produce	1	1

			more that they can consume?		
Are you getting adequate assistance form NGO representatives with garden activities?	3	36	Do you go to nutrition gardens to provide expertise assistance to garden participants?	2	0
Are you benefitting from the work you are doing at the nutrition gardens?	12	27	Are your garden members benefitting from the gardens you are facilitating?	1	1

4.1.4 GARDEN PARTICIPANTS

The table above shows the responses that were given by garden participants and NGO representatives. The table shows that 100 percent of the participants agreed that they were members of nutrition gardens. 22 out of 39 respondents said they went to the gardens at prescribed times. The table also shows that 30% of garden participants have other people who help them carry out garden activities while the remaining 70% do not have. 100% participants also said they did not pay any money to the NGO for their service. Only 13 participants said they have easy access to irrigation water while 26 said they did not have easy access to water. 37 out of 39 participants said they did not have adequate input resources for their garden activities while 2 said they had enough resources. The table indicates that the NGO representatives do not continuously help the garden participants, there is a time that they leave them on their own. Also of interest to note is the fact that 12 participants said they were benefitting from the garden activities while the other 70% said they were not benefitting from the garden activities.

The above findings are not in tandem with findings in a study carried out in America by WHO and FAO where most urban HIV and AIDS patients did not participate in nutritional gardens due to many reasons such as work commitments and fear of stigmatization. In this current study, of

the sample used, most all participants were seen doing something about the garden activities, however, the effectiveness part is yet to be discussed.

4.1.5 NGO REPRESENTATIVES

From the table, it is notable that both of the NGO representatives alluded to the fact that they were employees of NGO involved in nutrition garden for PLWHA. All representatives also said they went to nutrition gardens and prescribed schedules, but they also highlighted that the garden participants did not come as expected to the garden activities. It is also indicated in the table that all representatives concurred that they did not charge any money for their services they offer to PLWHA at the gardens. The table shows that one of the representatives said their organisation was doing its best while the other half said more could be done to improve service delivery to nutrition gardens of PLWHA. Of interest to note is the fact that one of the representatives said their members, participants of nutrition gardens were benefiting from the garden activities while the remaining 50% did not see the benefit at all.

The findings above correlate to some findings of a study conducted in China by a civil society called The New Dawn of Hope, where representatives were sent out to work with PLWHA in nutrition gardens. In the current study, NGO representatives were working with participants in the garden activities.

4.1.6 GARDEN ACTIVITIES AS OBSERVED AT 3 GARDENS AT DIFFERENT TIMES

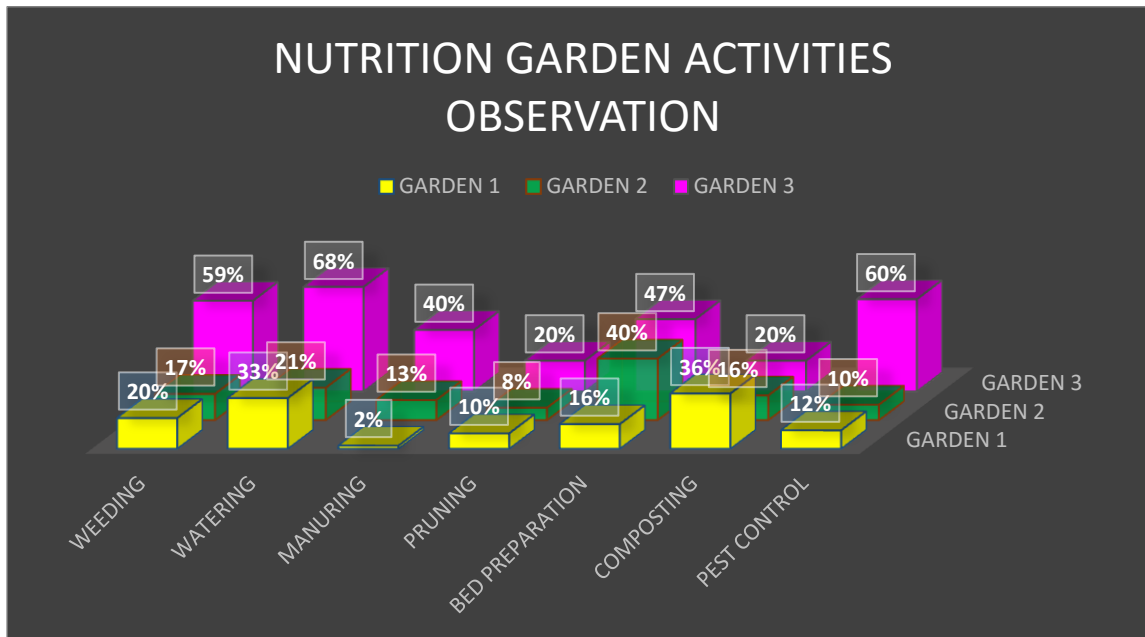


Fig (viii)
Observations of garden activities

The graph above shows different garden activities at 3 gardens observed at different times. The activities depicted in the graph are weeding, watering, manuring, bed preparation, composting and pest control. The researcher presents the different garden activities as percentages of the total garden that received a certain activity. Garden 1 is shown in yellow colour, garden 2 in green and garden 3 in pink.

It is shown in the graph that only 20% of garden 1 was weeded by the time of observation, 33% of the garden was watered by the end of the observation and pest control only amounted to 12%. The graph also shows that only 17% of garden 2 was weeded by the end of the observation, 21% was watered and only 10% of the garden had had pest control. The graph also shows garden 3 activities. It is indicated that 59% of garden 3 had been weeded by the end of the observation, 68% was watered and 60% of the garden had gone through pest control.

4.1.7 WATER SUPPLY FOR GARDEN IRRIGATION

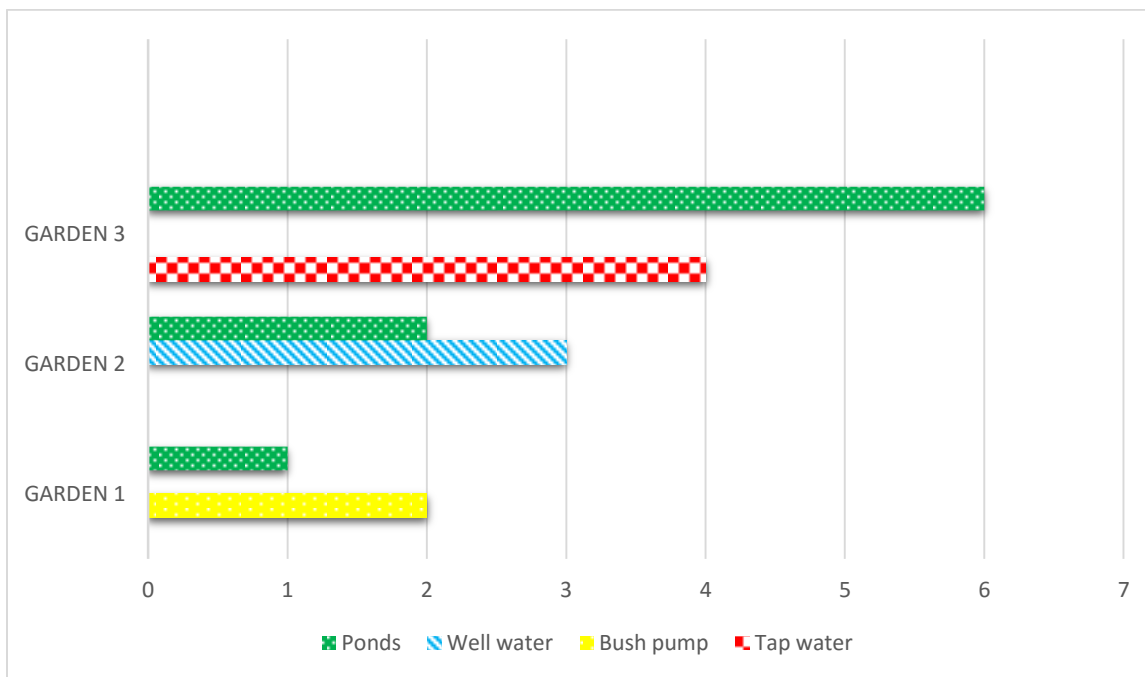


Fig (ix)

Distribution of water sources for the 3 gardens

The above graph shows the distribution of water sources for the three gardens that were used in this study. It is shown that garden 1 does not have any tap water but has 2 bush pumps and 1

pond. It is also shown that garden 2 does not have tap water and bush pumps but has 3 wells and 2 ponds. The graph shows that garden 3 has 4 taps and 6 ponds but does not have any bush pump and wells.

4.1.8 TYPES OF CROPS GROWN IN THE THREE GARDENS

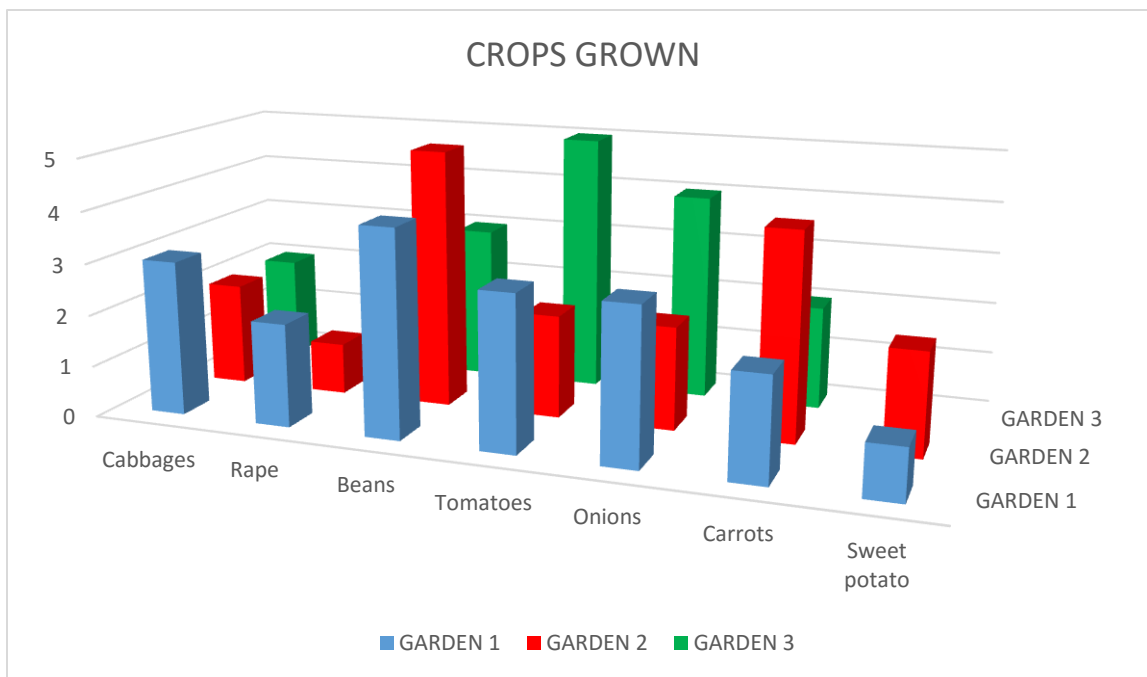


Fig (x)

Crops grown in Mutare North by PLWHA

The above data shows that the crops grown in the three gardens are cabbages, rape, beans, tomatoes, onions, carrots and sweet potatoes. In garden one, 3 people grow cabbages, 2 people grow rape and 3 people grow onions. In garden two, 2 people grow cabbages, 1 person grows

rape and 2 people grow sweet potatoes. In garden three, 5 people grow tomatoes, 2 people grow carrots and no one grows sweet potatoes.



Fig (xi) Carrot crop grown by one garden participant in Mutare North

The above given data shows a marked difference from the research conducted in Ghana by Woodman in 1996 on the type of crops grown by the garden participants. In the Ghanaian study, crops grown were bananas, plantains, rice, cassava and yams, while in this current study, crops grown are beans, cabbages, carrots, tomatoes and sweet potatoes.

Though there are marked differences between the crops grown by PLWHA in Ghana and in this study, there are similarities of crops grown between garden participants in the Harare study carried out by Adiso in 2013. The study shows that participants did not grow indigenous crops such as *Nevhe*, *Muboora*, *Nhungunira*, and *Mowa* but grew exotic crops like cabbages and carrots.

4.1.9 AVAILABILITY OF WATER TO NUTRITION GARDENS

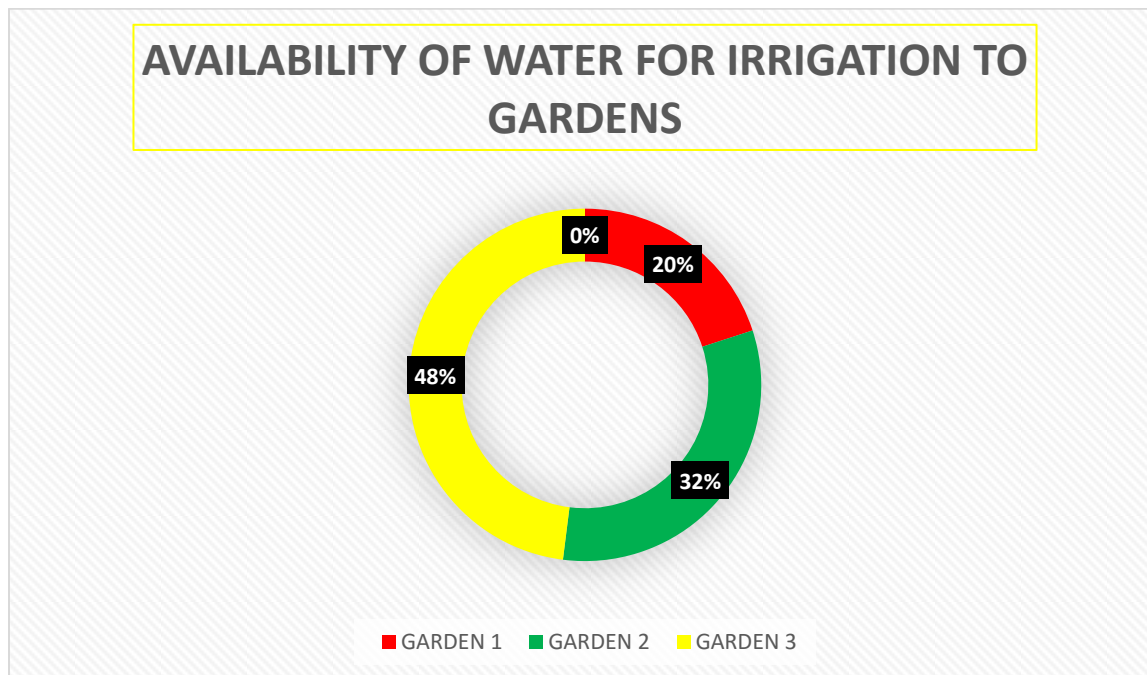


Fig (xii)

Availability of irrigation water at the gardens

Water is not always available for the garden participants and the researcher presents the availability of water to garden participants as percentages. The chart shows that for garden 1, irrigation water is available for 20% of the possible volume. Garden 2 has 32% irrigation water available of the possible volume and garden 3 has 48% irrigation water available of the total possible volume.

4.1.10 PROXIMITY OF GARDENS TO PARTICIPANTS' RESIDENTS

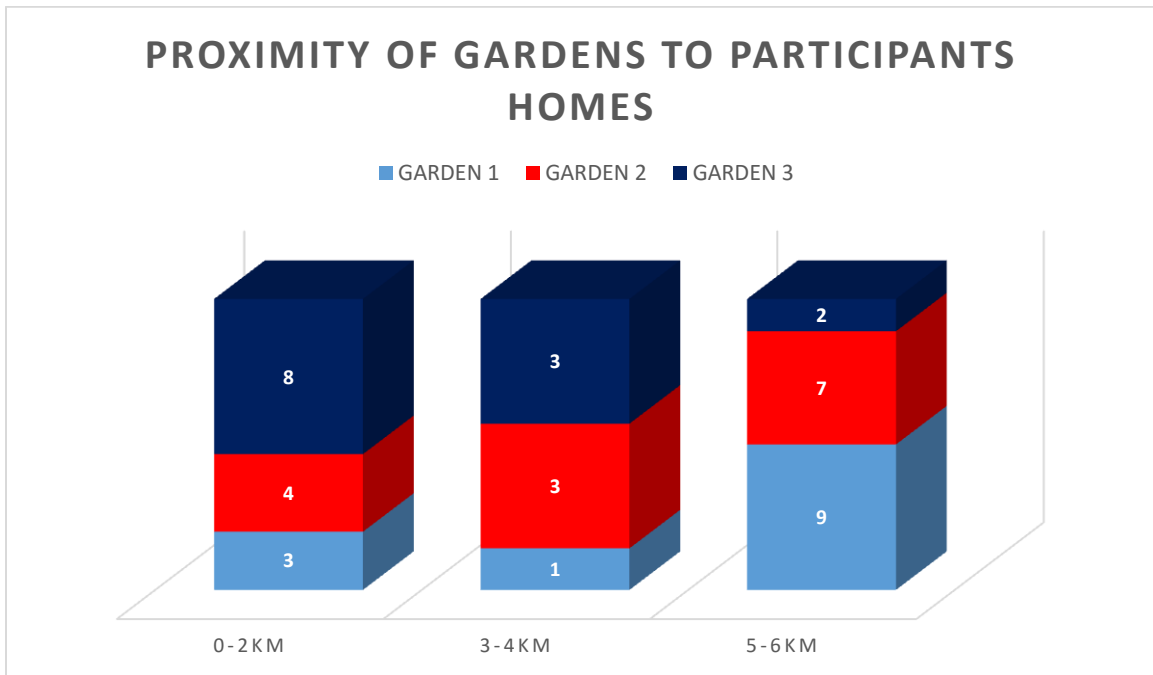


Fig (xiii)

Nearness of gardens to nutrition garden participants' homes

The column graph above shows the distance from home to the garden for every garden participant. It is indicated in the graph that in garden 1, 3 people walk a distance of up to 2Km, 1 person walks up to 4Km and 9 people walk up to 6 Km to the garden. The graph shows that from garden 2 members, 4 people walk up to 2Km, 3 people walk up to 4Km and 7 people walk up to

6 Km to the garden. The graph also shows that in garden 3, 8 people walk up to 2Km, 3 people walk up to 4 Km and 2 people walk up to 6 Km to the nutrition gardens.

4.1.11 PARTICIPANTS INTERVIEW RESPONSES

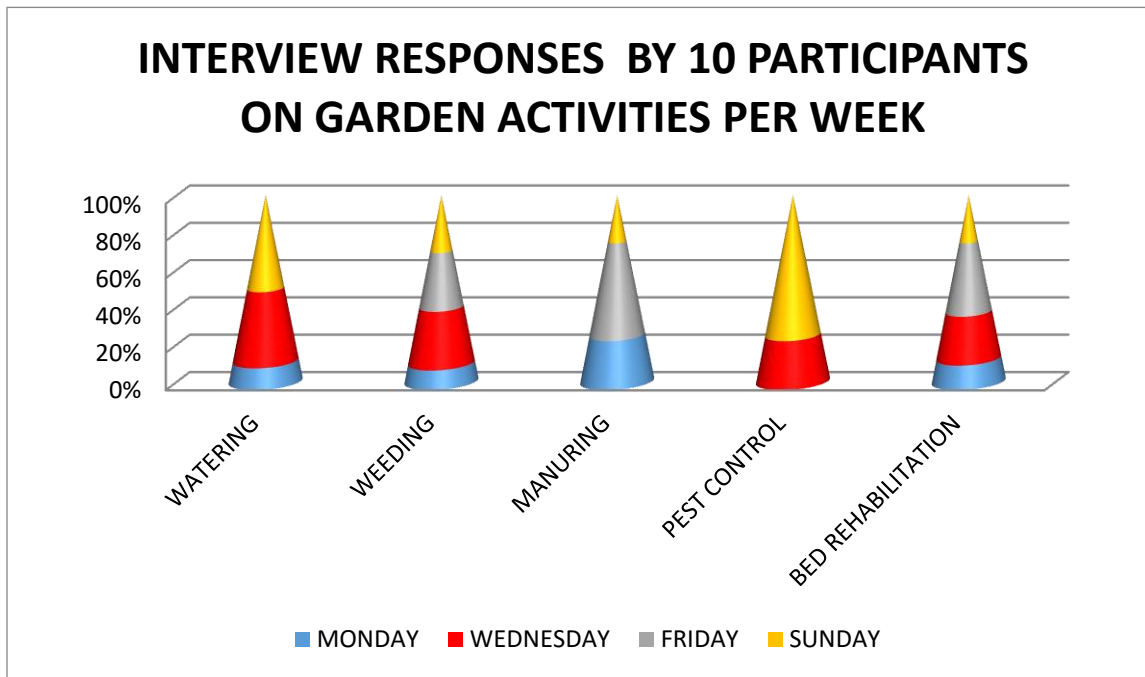


Fig (xiv)

Interview responses by 10 participants on nutrition garden activities

The researcher organised interviews with 10 participants drawn from the 40 garden participants. This was done so as to consolidate the validity of data gathered in the study. These interviews were in addition to questionnaires distributed to the same participants with similar questions. The graph above shows that on Monday only 2 people out of 10 water their crops, 1 person control weeds, 1 person apply manure to crops, no one controls pests and 1 person rehabilitates his/her

beds. It is shown on the graph that on Wednesday, 70% of the people water their crops, no one applies manure to crops, 3 people control weeds, 1 person controls pests and 20% of the people rehabilitates their beds. The graph also indicates that no one waters crops on Friday, 30% of the people control weeds, no one controls pests and 3 people rehabilitate their beds. On Sunday, the graph shows that 9 people out of 10 water their crops, 30% control weeds, 10% add manure to crops, 30% control pests and 2 people out of 10 rehabilitate their beds.

4.1.12 NUTRITIONAL HEALTH CASES OF PLWHA AT DIFFERENT HEALTH CENTRES

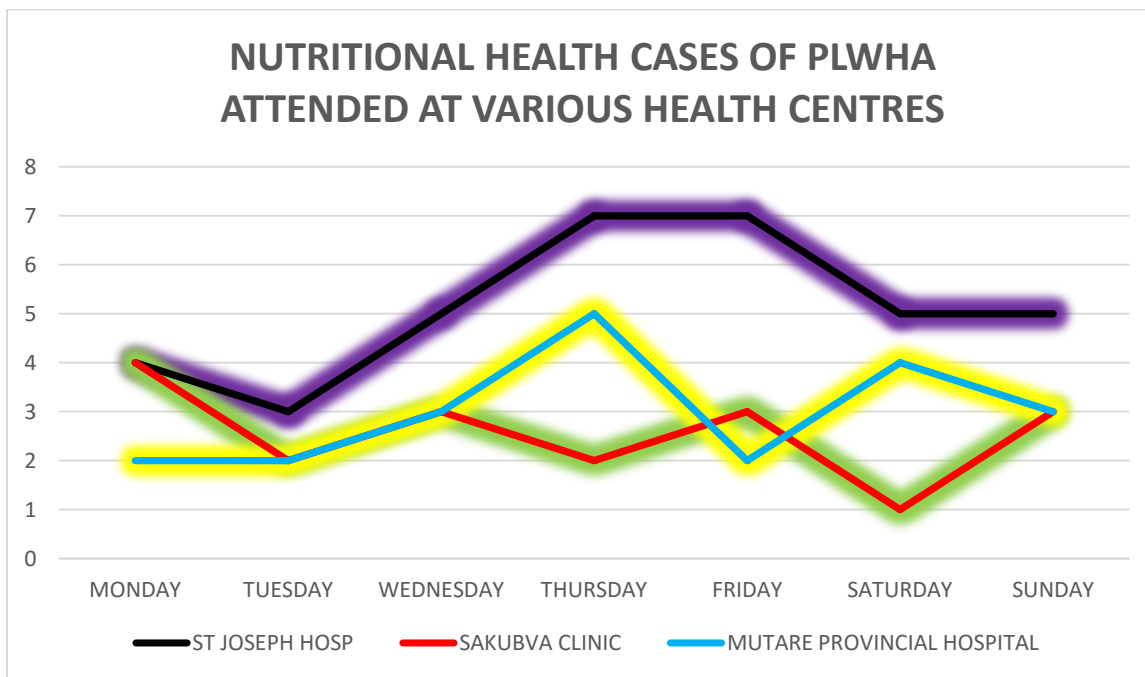


Fig (xv)

Average frequency distribution of visits to health centres by PLWHA on nutritional matters

The line graph above shows the average frequency of visits by PLWHA to different health centres in Mutare North concerning nutrition problems. It is shown in the graph that on Monday,

4 PLWHA visit St Joseph hospital with nutritional health problems, 3 people visit on Tuesday, 5 people visit on Wednesday, 7 people on Thursday and 5 people on people on Saturday and Sunday.

The graph shows that 5 people visit Sakubva clinic on Monday, 2 people on Tuesday, 3 people on Wednesday, 2 people on Thursday, 3 people on Friday and 3 people on Sunday. The graph also indicates that 2 people visit Mutare Provincial Hospital on Monday and Tuesday, 3 people on Wednesday, 5 people on Thursday, 2 people on Friday and 5 on Sunday.

The presentation above of information being provided by health officials on the visits and health condition of the garden participants concurs with the Rustenburg study which also utilised primary health care centers to get information on PLWHA who were nutrition garden participants.

4.1.13 NGO REPRESENTATIVE INTERVIEW RESPONSES

An interview was arranged with an NGO representative. The purpose of the interview was to clarify and demystify some misconceptions that may have arisen from convergent questions in the questionnaire concerning NGO involvement with nutrition gardens for PLWHA. In the interview, the representative revealed that most garden participants did not come for scheduled garden activities. Some would come at their own time and miss out on expertise assistance offered by NGO reps. The representative also stated that some gardens were too distant from participants and this contributed to some failing to come completely and others coming late for their garden activities. It was also revealed that NGOs do not stay with beneficiaries all the time,

they have limited time when they help the beneficiaries and then leave them alone to continue running garden activities. It is expected that by the time the NGO pull out, beneficiaries would be fully equipped with skills and knowledge of how to continue in the absence of the NGO. The representative quickly cited some challenges faced by beneficiaries in some nutrition garden, that of irrigation water and its accessibility. The representative said some sources of water were not user friendly to beneficiaries such as bush pump boreholes. These are too hard to operate for beneficiaries, noting that they are people with compromised health due to HIV and AIDS.

4.1.14 MUTARE CITY COUNCIL MANAGEMENT INTERVIEW RESPONSES

The researcher interviewed officials at Mutare city council. The purpose of the interviews was to establish the formal existence of nutrition gardens in Mutare North and their involvement in these gardens as the local authority in this area. From the conducted interviews, it was established that the three gardens which were the focus of this study were all allocated land by the city council officially. It was with the initiative of the NGOs who came forward to apply for the garden land on behalf of the PLWHA. The city council however, established that the gardens will remain property of the city council since they did not sell the land to PLWHA, but only gave them to use as their contribution to help people in need such as PLWHA. It also emerged in the interviews that it was the city council that cited the gardens where they are situated currently.

4.2 DISCUSSION OF FINDINGS

The findings in this study consist of the observed phenomenon, questionnaire responses and interview responses of nutrition garden participants, NGO representatives, Mutare city council officials and health officials.

4.2.1 NGO REPRESENTATIVES

NGO representatives have a significant stake in nutrition garden activities in Mutare North. From gathered data, NGOs initiated the very existence of these gardens by seeking land from the local authorities and further mobilising resources to set up the gardens and also to come up with garden activities schedules and technical expertise. NGO representatives also have particular days and time that they visit the gardens. The time spent at different gardens vary from garden to garden and at times they fail to go to these gardens. NGO representatives also have limited time that they help garden beneficiaries, they will not be with them ‘forever’, for example garden 3 has the least visit by NGO representatives because they have been helped longer any other garden group. This is with the understanding that the beneficiaries would have gained enough skills to carry on without the NGO support. NGOs provide inputs to beneficiaries to which include fertilisers, pesticides and garden implements.

The membership of nutrition gardens in Mutare North show that it comprise only PLWHA which may contribute to participants' feeling of stigmatisation. This is in sharp contrast to the China case in chapter 2 where the NGO leaders decided to include other people who were vulnerable such as the elderly, widows and the poor even if they were not infected with HIV.

Another interesting discussion is that on the types of gardens initiated by the NGOs for PLWHA. The gardens in Mutare North are basically for subsistence of the participants, small in nature and this is in sharp contrast to the Australian case mentioned in chapter 2 where the ones who had commercially oriented gardens benefited well from selling surplus to various markets.

The current study shows that NGOs are helping PLWHA to grow a variety of crops in almost all gardens, this is in tandem with the Malawian case where in Lolongwe, participants who grew a variety of crops benefited more than those with few options, especially when one other crop fail due to various reasons such as pest attack or other crop diseases.

4.2.1.1 Interpretation

Findings from data collected on NGOs show that NGOs are doing great work in assisting PLWHA in nutrition gardens. Activities of monitoring garden participants show that some are benefitting while most of the participants are not benefitting. NGOs representatives are expected to use a language that is understood by all participants and also try by all means to translate or interpret some terms which may not be familiar to participants. It is evident that NGO representatives leave participants before they are fully skilled in running garden activities on their own. Some garden irrigation water systems are not functional because NGOs had not

trained participants on servicing water systems in the event that they break down. Some NGOs involved in nutrition gardens do not help participants in organising market for some excess produce and this become a burden to participants who fail to benefit from their extra production. From data accumulated from garden participants, it is evident that irrigation water is a big challenge to most garden participants. The main problem is hinged on the type of water sources that were set up by NGOs such as bush pump boreholes which are hard to operate for the PLWHA. Watering garden crops require fetching of water over and over again and this activity on bush pumps impose a lot of strain on PLWHA who already have compromised health. All gardens had their genesis from NGO initiative. It is also clear that most participants were not consulted as to whether they really needed a nutrition garden intervention of something else. NGO representatives complain that most garden participants do not come at scheduled times for garden activities and others do not come at all, this could be caused by lack of proper needs assessment. The indication is that most participants do not 'own' the nutrition gardens, because there was no due consultation by NGOs concerning their needs and citation of the nutrition gardens.

4.2.2 MUTARE CITY COUNCIL OFFICIALS

Mutare city council officials are an important stake holder in nutrition gardens for PLWHA. They have allocated land to garden beneficiaries. They have also made roads that lead to the gardens from different residential suburbs.

A look at the American case shows striking similarities in the citing of the nutrition gardens in Mutare and those in the American case in chapter 2. It is indicated in chapter 2 that some

participants failed to carry out their expected duties at the garden because the gardens were cited in distant places from their places of residence.

Another similarity on gardens cited far from participants is in the Bulawayo case of Trenance where some participants complained on the issue of distance that they could do their garden activities effectively.

4.2.2.1 Interpretation

From data gathered on Mutare city council, it is clear that the City Fathers were very considerate by agreeing to give pieces of land to be used as nutrition gardens by PLWHA in Mutare North since they are not being paid anything for that 'kind gesture'. However, a problem lies in the citation on the gardens in relation to most participants' residence. Most people walk long distances to get to the gardens and this poses a serious challenge to PLWHA, who are the primary beneficiaries of the nutrition gardens.

4.2.3 HEALTH OFFICIALS

Health officials in different health centres are crucial in this study in Mutare North. They deal with PLWHA on a daily basis and provide critical information in this study. The nurses said that they deal with PLWHA cases of malnutrition. The nurses said that most people who come with nutritional health problems did not have any form of employment and they did not have any garden to grow any crops. For those who were members of nutrition gardens, they said they were not producing any meaningful produce that could improve their diet. The nurses also said they

prescribed their patients to eat healthily, balanced diets of which most of them could not afford to provide descent meals for themselves and their dependents.

The study conducted by Gillespe and Kadiyala in 2005 cited in chapter 2 established that good nutrition improves the response and adherence to ART. This concurs with the statement of some health officials in this study that good and healthy diet promotes good health in people taking ART.

As cited in related literature, Lock conducted a study in 2002 which showed that traditional foods high in fibre are very nutritious and have important medicinal properties especially to individuals with compromised immune system due to HIV infection. This finding is in line with the view of some health officials in this study who encouraged their patients, PLWHA, to resort to traditional diet because of its natural nutritional remedies which do not have side effects such as those of processed foods.

4.2.3.1 Interpretation

From collected data on health officials from the three different Health centres in Mutare North, one can say health official dealing with PLWHA are a key stakeholder in this study. Most PLWHA who suffer dietary problems go health centres for help. These officials are doing a great job by assisting these patients, however, more can be done in this regard, not only to provide ART to patients but also to ensure that PLWHA have proper nutrition. The health officials are in a better position to know and understand the predicament of the PLWHA than any stakeholder in this study and how they need proper nutrition for their health to improve.

4.2.4 NUTRITION GARDEN PARTICIPANTS/BENEFICIARIES

The primary beneficiaries of nutrition gardens are the participants who are given land portions in gardens and input materials by NGOs. Some say the resources allocated to them by NGOs are not adequate for their garden activities. NGOs provide expertise help in the form of representatives but these, participants query, do not stay long enough with them to train them on requisite skills and knowledge for sustaining garden activities. Other participants still queried that most of the time the representatives made their instruction in English, a foreign language to most of them since the bigger percentage of participants were women who had suffered the effect patriarchal dominance in their families. Another issue that came from participants is the problem of irrigation water. Some said the source of water was difficult to operate, some said the availability of irrigation water was very erratic and resulted in many participants failing to water their crops effectively. Some participants also raised the issue of distance from their places of residence to the garden. They said the gardens were situated far from their homes, some walk as far as 6 Km to the garden and this slows down their desire to be effective and fruitful in the nutrition gardens.

4.2.4.1 Interpretation

The data amassed on the primary beneficiaries of nutrition gardens reveal that they have a lot of challenges concerning garden activities and their importance in their lives. Garden activities are heavy for most of the participants, activities such as digging for bed preparation and fetching water from water sources like bush pumps. Some participants fail to go for their routine garden activities when they fall ill but they have relatives who can stand in for them, thereby carrying on

with their garden activities but most participants do not have anyone who can help and in times of ill health their nutrition garden crops dwindle and wilt for lack of care. Garden implements are not adequate for most gardens and participants have to wait for each other, for example when spraying insecticides, the knapsack sprayers are not enough for all participants and this slows down the momentum of garden activities. From collected data, one may also say that NGO representatives are not giving effective assistance to garden participants in that at times they use foreign language of which most participants are not familiar with. NGO representatives also do not nurture the garden participants until they are able to carry on without their help. This cause big problems to garden participants in that they fail to articulate garden activities effectively for their benefit because they will be lacking the needed skills and support. More than 60% of participants say they are not benefiting as they expected from the garden and this is a major cause of concern, because this is the primary focus of the institution of the nutrition gardens, to benefit PLWHA and improve their livelihoods by providing adequate nutrition and perhaps sell excess produce for a profit for other necessities.

The Harare case mentioned in chapter 2 showed that garden participants complained about inadequate funding for garden activities. The same problem is also seen in the current study where the garden participants say they do not have enough equipment and inputs do be more effective in their garden programmes.

4.3 SUMMARY

This chapter presented data accumulated through interviews, questionnaires and observations. Data was firstly scanned and then sifted. The scanning and sifting was done to enable the researcher to group the data in accordance with their relevance, pertinence and reliability. Data presentation was done theme by theme and each theme was made by one, two or more variables to makeup the univariate, bivariate and multivariate methods. The data was presented in many different ways and formats which include bar graphs, clustered column graphs, pie charts, line graphs, tables and narrative texts to outline the data accumulated. In addition to this, the chapter had data discussions and interpretation to make sense of meaning of the collected data. The next chapter is chapter 5, it deals with summary, conclusions and recommendations.

CHAPTER 5

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.0 INTRODUCTION

This Chapter is the last, shortest but not the least of all Chapters of the dissertation. The chapter discusses the whole project by bringing in summaries of all the Chapters, that is, the background of the study, the problem area, objectives, research questions and methodology utilised. The Chapter will briefly discuss the findings from Chapter 4 and conclusions drawn from the findings and hence recommendations to the sector, the government, NGOs, PLWHA and other researchers to the subject matter.

5.1 SUMMARY

The researcher sought to investigate and analyse the impact nutrition gardens for PLWHA in Mutare North. The research was conducted against the background that there are nutrition gardens for PLWHA in Mutare North, aimed at improving their livelihoods buy improving their diet and possible providing cash through selling excess produce but most garden participants live pathetically. Some cannot even afford descent meals, others have dependent children who have since dropped out of school and some cannot afford descent accommodation and clothing.

The statement of the problem was given it showed that despite concerted efforts by various stakeholders to alleviate the plight of people living with HIV and AIDS on nutrition and dietary concerns using nutrition gardens, many would be beneficiaries of such efforts are still failing to

benefit meaningfully in Mutare North. The scourge of HIV and AIDS continues to bite in many communities and the most affected groups are women and children in this area. In Mutare North there are many PLWHA who have joined nutrition garden programmes in expectation that they will improve their nutrition and consequently have a better living standard but unfortunately, many of these people are not benefiting meaningfully from the nutrition gardens.

Various sources of literature were explored and empirical evidence from other countries and cities was additionally provided. The literature review process linked the major objectives and research questions to the area under study and this was found to be pertinent to the study. Countries and cities that constituted the review of related literature include The United States of America-Oregon city, China-Town of Hami, Australia-Birdum city, Ghana-Kumasi City, Uganda-Kampala city, Malawi (Lilongwe, Mzuzu and Zomba), South Africa-Rustenburg, Zimbabwe-Bulawayo and Harare. These studies made very important findings and conclusions in the field under study and these were varied in accordance to the particular study, demographics and geographic place of each study. Some of the important conclusions made include that PLWHA can benefit immensely by not only having nutrition gardens, but also making them of a commercial nature, PLWHA must receive regular nutrition counselling which keeps participants informed and reminded about the benefits of diversity in their diet, PLWHA form groups in which they can interact as they share ideas and form nutrition gardens and that PLWHA grow different food crops in nutrition gardens all year round to minimise the risk of an overall crop failure.

The methodology used was descriptive survey because it has the propensity to give statistical information about events as well as conceptions about how people experience events. The

research also looked at the different research studies under Methodology and adopted the descriptive survey which was justified in the research in that some experimental and non-probability studies were needed in the research. Another advantage of descriptive survey is the unique data collection form of case studies. These case data can be collected from individuals' personal accounts or from written data such as newspaper reports or minutes from official meeting.

In the current study, the population was the 200 participants in nutrition gardens for PLWHA in Mutare North, according to statistics provided by Mutare city council and NGOs plus 10 officials from the NGOs and health institutions, making a total of 210. The researcher used simple random sampling and purposive techniques to select the sample. The reason for using simple random sampling technique is that nutrition garden activities for PLWHA in Mutare North seem to take a pattern that is similar throughout Mutare North, therefore a random selection of participants in this research is representative of the rest of the participants forming the population. The sample also included 7 participant from city council, health centres (nurses), NGOs and these were selected purposively.

The researcher used questionnaires, interviews and observations as research instruments. The researcher utilised interviews to collect information from Mutare city council officials and nurses. Interviews were appropriate to use here because there was need for probing and elucidation on issues pertaining to nutrition issues of PLWHA. Questionnaires were designed for Mutare city council personnel. The researcher additionally used total observation technique to collect information on Mutare North nutrition garden participants. This was important to reduce or eliminate the Hawthorn effect on participants. Hawthorn effect makes

the participants change their department when they know or suspect they are being observed. Observations were also of paramount importance here because not all information or authentic facts could be obtained by use of questionnaires and interviews since respondents may willfully give erroneous information or withhold known facts. In addition, the researcher also employed the use of interviews especially on the management of Mutare city council and NGO facilitators for demystification of possibly sensitive issues concerning nutrition gardens for the PLWHA and their impact, this was vital to get to the roots of the authentic causes of ineffectiveness of nutrition gardens for PLWHA in Mutare North.

Research findings were presented and analysed in chapter 4. Data presentation was done in the form of tables, pie charts, bar graphs, line graphs and text. From the data collected and presented, it shows that there is a wide gap between what is expected and the reality on the plight of PLWHA who are members of nutrition gardens. The primary purpose of constructing nutrition gardens is to improve nutrition in PLWHA so that they can live a better life, continue to support their families effectively and contribute meaningfully to their communities and their country at large but this is not the case in Mutare North, PLWHA continue to suffer despite nutrition garden intervention.

5.1.1 Summary of Findings

a) Inadequate support from NGOs

While NGOs initiated the nutrition garden programmes for PLWHA in Mutare North, they are not doing enough to help the garden participants. Participants complain of inappropriate language used by representative, they also complain of the time they spend with them that it is inadequate for them to have gained all the required skills to be on their own, NGOs are

setting up inappropriate water sources which are hard for garden participants to operate. For those who manage to produce excess, there is no ready market for their produce.

b) Inappropriate garden citing

The citing of the garden was done by city council after the NGOs had approached them with a proposal. The citing of the nutrition garden is erratic for most participants in that most beneficiaries walk long distances to the gardens and it strains them, they are wearied by the walking to the garden before they even start the work.

c) Unreliable irrigation water

For those who use tap water, the council rations water to the gardens which cause the garden activities to be seriously affected. Other sources of water like bush pumps are not easy to operate for most participants and they discourage them from watering their crops.

d) Market challenges

For the few who have produced extra for selling, the challenge they face is of marketing their produce. There are many competitors who sell the same horticultural products, making it difficult for the garden participants to sell their produce

e) Inadequate resources

The garden participants said they do not have enough resources to use in their garden activities resulting in some of them failing to grow the crops they need.

f) Exotic crops grown

Only exotic crops are grown by garden participants at the expense of the indigenous crops.

5.2 CONCLUSIONS

- ✚ It has been concluded that PLWHA have nutritional challenges and they need an intervention.
- ✚ It has been concluded that nutrition gardens have a massive propensity to meet the nutrition need of PLWHA.
- ✚ From the amassed data, it has been concluded that nutrition gardens for PLWHA in Mutare North are not strategically cited.
- ✚ From the analysis of collected data, it has been concluded that garden participants are not doing their garden activities effectively.
- ✚ It has been concluded that the NGOs in nutrition garden programmes can still do better than they are doing now.
- ✚ From the collected data, it is concluded that garden participants, in general, are not benefiting from the nutrition garden intervention as expected.

5.3 RECOMMENDATIONS

5.3.1 Government

- ✚ Considering the finding that garden participants not having adequate resources to use in garden activities, it is recommended that the government complement NGO efforts in resource mobilisation and implement and equipment for nutrition garden programmes.

- ✚ In light of the finding that there is inadequate support from NGOs to garden participants, the government is recommended to supplement human resources expertise in nutrition garden programmes to partner with NGO representatives who do not stay long with participants.

5.3.2 NGOs

- ✚ Considering the finding of inadequate support from NGOs, it is recommended that NGOs consult primary beneficiaries concerning their problems so that there can be full participation and ownership of programme, its activities and its results thereof.
- ✚ In view of the finding of inadequate support from NGOs, NGO representatives are recommended to use a language that everyone can understand, or they can seek translation services as they interact with garden participants.
- ✚ Considering the finding that NGOs do not give adequate support to garden participants, NGO representatives are recommended to stay a little longer with garden participants, long enough to make sure every garden member is clear of what is expected of him/her, they should not pull out too soon from the garden programmes.
- ✚ In light of the finding of unreliable irrigation water, NGOs are recommended to consider conditions of beneficiaries before setting up structures like water sources, bush pump boreholes are inappropriate for PLWHA because they are hard to operate.
- ✚ Considering the finding of inadequate resources for garden participants, it is recommended that NGOs establish commercial nutrition gardens that can not only

meet the nutrition needs of the PLWHA, but also provide extra financial resources for participants since they have other crucial needs around their health and daily life expenses.

- ✚ Considering the finding of growing exotic crops only, NGO representatives are recommended to encourage garden participants to grow indigenous crops such as *nyevhe, mowa and nhungunira* too, to supplement their diet for their high nutritional value.

5.3.3 City Council

- ✚ In view of the finding of inappropriate garden citing, the city council is recommended to consider the distance of nutrition gardens from beneficiaries' homes. Giving PLWHA land for nutrition gardens is a good gesture, but citing them far from where most of them stay is another problem created in trying to help.

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APPENDICES

Appendix A-INTERVIEW GUIDES

My name is Harmony Nyakonda, a student at Midlands State University. I am carrying out a study on the impact of nutrition gardens to PLWHA in Mutare North. Information that you shall provide will be used strictly for educational purposes and no interference will occur against your need for privacy.

INTERVIEW GUIDE TO HEALTH PERSONNEL (NURSES)

1. How important is proper nutrition, balanced diet to people?
2. What are the major causes of malnutrition?
3. How important is a balanced diet to PLWHA?
4. How vulnerable are PLWHA to malnutrition?
5. Do you normally treat nutrition related sickness?
6. Do you attend nutrition related health issues for PLWHA?
7. How often to you get nutrition related health cases for PLWHA?
8. Do you give nutrition guide/counselling to PLWHA when they come for health services?
9. What ways do you think PLWHA can do to reduce malnutrition problems?
10. Do you think nutrition gardens can help to improve nutrition supplies to PLWHA?

My name is Harmony Nyakonda, a student at Midlands State University. I am carrying out a study on the impact of nutrition gardens to PLWHA in Mutare North. Information that you shall provide will be used strictly for educational purposes and no interference will occur against your need for privacy.

INTERVIEW GUIDE TO THE MUTARE CITY COUNCIL HEALTH DIRECTOR

1. Do you allocate land to people and organisations?
2. Do you give land for nutrition gardens around Mutare urban centre?
3. Have you allocated any land to PLWHA in Mutare North?
4. For what use was that land you allocated to PLWHA in Mutare North?
5. Where are the nutrition gardens located?
6. What considerations did you make on citing the nutrition gardens?
7. Do you charge the beneficiaries any money for using the gardens?
8. Have you given these gardens to PLWHA to own them permanently?
9. Why did you decide to allocate this land to PLWHA?
10. What else can you do in your jurisdiction to improve the plight of PLWHA?

My name is Harmony Nyakonda, a student at Midlands State University. I am carrying out a study on the impact of nutrition gardens to PLWHA in Mutare North. Information that you shall provide will be used strictly for educational purposes and no interference will occur against your need for privacy.

INTERVIEW GUIDE TO NGO REPRESENTATIVES

1. Are you working for an NGO that is involved in nutrition garden programmes for PLWHA in Mutare North?
2. Who initiated the nutrition gardens for PLWHA?
3. How many nutrition gardens are you facilitating in Mutare North?
4. How many participants do you have per garden?
5. What sort of assistance do you give to these participants as you do the garden activities?
6. Do you charge the participants any money for the service you give them?
7. How effective do you think your service is in meeting your objectives in these nutrition gardens?
8. For how long do you remain with a group at a given nutrition garden?
9. Do you think the PLWHA, the participants are benefiting as to their expectation from the nutrition garden intervention?
10. What else do you think can be done to improve the effectiveness of your involvement in nutrition gardens?

My name is Harmony Nyakonda, a student at Midlands State University. I am carrying out a study on the impact of nutrition gardens to PLWHA in Mutare North. Information that you shall provide will be used strictly for educational purposes and no interference will occur against your need for privacy.

INTERVIEW GUIDE TO GARDEN PARTICIPANTS/BENEFICIARIES

1. Are you a member of the nutrition gardens in Mutare North?
2. How many are you in your group?
3. How far do you walk to the garden?
4. Do you get any assistance with your garden activities?
5. Who gives you the help?
6. Do you find your involvement in these nutrition garden projects helpful? To what extent?
7. What do you think needs to be improved concerning the nutrition garden programmes?

Appendix B-OBSERVATION CHECK LISTS

OBSERVATION CHECKLIST, GARDEN PARTICIPANTS

1. The portion of the garden that received stated garden activities at given schedules on three gardens

Observation check list on garden activities of participants

ACTIVITY		GARDEN 1 (%)	GARDEN 2 (%)	GARDEN 3 (%)
1	Weeding			
2	Watering			
3	Manuring			
4	Pruning			
5	Bed-preparing			
6	Composting			
7	Pest control			

2. Time spent by NGO representatives at the three different gardens

Observation checklist of time spent by NGO representatives at the three different gardens

	GARDEN 1	GARDEN 2	GARDEN 3
Monday			
Wednesday			
Friday			
Sunday			

Appendix C, QUESTIONNAIRES

My name is Harmony Nyakonda, a student at Midlands State University. I am carrying out a study on the impact of nutrition gardens to PLWHA in Mutare North. Information that you shall provide will be used strictly for educational purposes and no interference will occur against your need for privacy.

QUESTIONNAIRE TO GARDEN PARTICIPANTS (English)

1. Are you a member of nutrition garden for PLWHA in Mutare North?

Yes	No
-----	----
2. Do you go to the garden at the prescribed schedule?

Yes	No
-----	----
3. Is the nutrition garden work heavy?

Yes	No
-----	----
4. Do you have other people who help you to do the work in the garden?

Yes	No
-----	----
5. Do you pay any money to NGOs for what they do for you?

Yes	No
-----	----
6. Do you have easy access to water for irrigation?

Yes	No
-----	----
7. Do you have enough supply of input materials for your garden activities?

Yes	No
-----	----
8. Is the garden that you go to near where you stay?

Yes	No
-----	----
9. Do you always have NGO reps with you when you come to the gardens?

Yes	No
-----	----
10. Do you have a market for your excess produce?

Yes	No
-----	----
11. Are you getting adequate assistance form NGO representatives with garden activities?

Yes	No
-----	----
12. Are you benefitting from the work you are doing at the nutrition gardens?

Yes	No
-----	----

Zita rangu ndinonzi Nyakonda Harmony, ndiri mudzidzi pa chikoro che Midlands State University. Ndirikuita tsvagurudzo pakukosha kwemapindu ezvekudya evanhu vanorwara ne chirwere che HIV ne AIDS mu nzvimbo ye Maodzanyemba kwe guta reMutare. Zvamuchataura kwandiri zvichachengetedzwa kwazvo uye kuti zvichashandiswa munezvekudzidza. Munoziviswawo kuti hapana zvakaipa zvichakuwirai maererano nekodzero yenyu yekusabudiswa pachena zvisina wirirano.

GWARO REMIDVUNZO KUVASHANDI VEMUMAPINDU (Chishona)

- | | | | | |
|--|--------------------------|-------------------------------------|--------------------------|-------------------------------------|
| 1. Uri nhengo yebindu rezvekudya revanhu vano rwara ne HIV ne AIDS here? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 2. Unoenda ku bindu panguva yakatarwa here? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 3. Kobasa remubindu rakaoma here? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 4. Unevanhu vanokubatsira here pamabasa ekubindu? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 5. Unemari yaunobvisa here pakushandisa kwaunoita bindu? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 6. Ko mvura yekudiridza unoiwana zvirinyore here? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 7. Unowana zvekushandisa zvakakwana here pamabasa emubindu? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 8. Ko bindu raunoenda kwariri riri pedyo nepaunogara here? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 9. Vanokubatsira ve NGO vanogara vachiuya nguva dzese here? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 10. Une kwekutengesera zvirimwa zvako here kana warima zvakawanda? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 11. Ko ungati rubatsiro rwaunopiwa neve NGO rwakakwana here? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 12. Ko ungati urikunyatso bastirika neshanda kwako mubindu here? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

My name is Harmony Nyakonda, a student at Midlands State University. I am carrying out a study on the impact of nutrition gardens to PLWHA in Mutare North. Information that you shall provide will be used strictly for educational purposes and no interference will occur against your need for privacy.

QUESTIONNAIRE TO NGO REPRESENTATIVES

1. Are you an employee of an NGO participating in nutrition gardens for PLWHA

Yes	No
-----	----
2. Do you go to nutrition gardens to help gardens participants with their activities?

Yes	No
-----	----
3. Do you have laid out programmes and activities for garden participants?

Yes	No
-----	----
4. Do the garden participants come at prescribed schedules to the nutrition gardens?

Yes	No
-----	----
5. Do you charge garden participants any money for your service?
6. Is your organisation doing its best to assist the garden participants at the gardens?

Yes	No
-----	----
7. Can your organisation do better than what they are doing now?

Yes	No
-----	----
8. Do you have transport to move around the gardens?

Yes	No
-----	----
9. Does your company give you enough resources to assist nutrition garden participants?

Yes	No
-----	----
10. Do you continue to assist garden participants all the time?

Yes	No
-----	----

11. Do you organise any market for those participants who produce more than they can consume?

Yes	No
-----	----

12. Are your garden members benefitting from the gardens you are facilitating?

Yes	No
-----	----

Appendix D, CONSENT FORMS/ GWARO REKUBVUMA KUPINDA MUTSVAKURUDZO

GWARO REKUBVUMA KUPINDA MUTSVAKURUDZO (Chishona)

Ini, ndinoti ndine makore anodarika gumi nemasere uyezve ndabvuma ndega pasina kumanikidzwa kupinda mutsvakurudzo irikuitwa naHarmony Nyakonda anodzidza kuMidlands State University. Tsvakurudzo iyi iri kuitwa kutsvaka mhinduro maererano nekushanda kwe mapindu akipwa vanorarama ne utachiwana we HIV. Mutsvakurodzi iyi ini ndichabatsira nekupindura mibvunzo inoenderana nekuziva kwangu.

Ndinobvuma kuti Harmony anditsanangurira zvizere zvinoenderana nekubatsira kwangu uyezve kuti ndatsananguriwa kuti ndinogona kubuda mutsvakurudzo iyi chero nguva ipi zvayo pasina zvinondiwira kuti ndabudirei. Harmony ati iye achapindura mibvunzo yese yandinogona kubvunza inoenderana netsvakurudzo iyi uyezve andivimbisa kuti zvese zvandichamuudza zvichashandiswa mutsvakurodzi iyi chete uye zvichange zvakachengeteka zvisingazopihwi mumwewo munhu upi zvake.

Ndinobvuma kuti ndatsanangurirwa kubatsirikana kwatingaita senharaunda kuburikidza nezvinenge zvakubuda mutsvakurudzo iyi. Ndatsanangurirwazve kuti kubatsira kwangu mutsvakurodzi iyi hakusi kuzopiwa mubairo kan kubhadharwa. Pamusoro peizvi ndatsanangurirwa kukosha kwerubatsiro rwangu mutsvakurudzo iyi.

Siginicha yemupinduri

Zita renyu nezita remhuri

CONSENT FORM

I..... agree that I am 18 years old and above and have agreed to participate in a research being conducted by Harmony Nyakonda, a student at Midlands state university.

The research is conducted to assess the impact of nutrition gardens for PLWHA in Mutare North.

I will give responses according to my knowledge of what I will be asked.

I consent that Harmony has explained to me in full concerning my participation and he has also told me that I am free to withdraw from participation if I may feel so at any given time without fearing anything. Harmony also said he will answer all the questions that I may have concerning the research and confirmed to me that all the information I will give him will be used for this research purpose and nothing else.

I also consent that Harmony has explained to me how my community stands to benefit from the outcome of the research. I am also aware that I will not be paid anything for my participation.

Participant Signature

Participant's Names