

**THE IMPACT OF HIV AND AIDS
ON FOOD SECURITY AND NUTRITION
IN SOUTH AFRICA**

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Acronyms and abbreviations

FANRPAN	Food, Agriculture and Natural Resources Policy Analysis Network
HIV and AIDS	Human Immunodeficiency Virus /Acquired Immune Disease Syndrome
HSRC	Human Sciences Research Council
MDG	Millennium Development Goal
NFCS	National Food Consumption Survey
PLWHA	people living with HIV and AIDS
TB	tuberculosis
UNAIDS	Joint United Nations Programme on HIV/AIDS
UNESCO	United Nations Educational, Scientific and Cultural Organisation
UNICEF	United Nations Children's Emergency Fund
WFP	World Food Programme
WHO	World Health Organisation

Executive summary

An estimated 33.2 million people worldwide were living with HIV and AIDS in 2007 (UNAIDS & WHO, 2007a), and millions of lives have been lost through this pandemic. Sub-Saharan Africa carries the highest number of HIV-infected persons (about 70%), yet it accounts for 11% of the world population. South Africa is reported to have the highest number of HIV-infected persons in the world, with about 5.5 million people living with HIV (UNAIDS & WHO, 2007). Persons aged 15–24 years account for 90% of new infections (UNAIDS & WHO, 2007). In South Africa, research published in 2005 showed that Mpumalanga had the highest prevalence of HIV in South Africa, followed by KwaZulu-Natal (Figure 1) (HSRC, 2005). The emergence of HIV and AIDS has exacerbated the hunger that was previously caused by droughts, famines and wars, as it affects the economically active who are breadwinners in their households. The HIV and AIDS pandemic and increasing poverty have worsened the food crisis that has not yet been resolved. Of great concern are the nature, extent and magnitude of the impact of HIV and AIDS on agriculture and food security systems in sub-Saharan Africa. HIV and AIDS and its impact on food security has been a thorny issue among policy-makers.

South Africa as a country boasts of food security at national level. However, food insecurity exists at household level. According the National Food Consumption Survey (NFCS) (NFCS, 2005), 20% of children aged 1–9 years were stunted. Children between the ages of 1 and 3 years consumed less than half of recommended energy levels required for optimal growth. Charlton and Rose (2002) reported household food insecurity in 43% of households in South Africa and it is also suggested that more than 14 million South Africans (35% of the population) are estimated to be vulnerable to food insecurity (HSRC, 2004). Though good policies aimed at fighting HIV and poverty are in place in some countries, the sting of the pandemic continues to be experienced with more persons becoming infected and continuing to die of AIDS-related diseases. The pandemic also prohibits economic development as traditional food production methods demand heavy manual labour, which is reduced when people are afflicted with HIV and AIDS. Malnutrition increases fatigue and decreases physical activity in HIV-infected persons (Piwoz & Preble, 2000). One of the effects of HIV infection is a person's frequent inability to go to work, thus reducing household income (Sibanda et al., 2007). Inability to go to work often results in the infected person's inability or limited ability to provide for the household due to the progressive nature of the disease. The relationship between AIDS, poverty and food insecurity is a vicious cycle, but women seem to be more vulnerable, as food insecurity may increase exposure to HIV when women and girls may engage in transactional sex in order to generate an income to feed their families (Wiesmann, 2006). Thus, poverty increases the risk of HIV infections among affected populations (Gillespie et al., 2007; Leyenaar, 2004). Another concern involving vulnerability of the household to food insecurity is the fact that HIV infection occurs among parents before children are affected, thus eroding the provider base for the household and reducing the purchasing power of the household. Another adverse effect of food insecurity is its impact on the health of individuals and subsequently on economic growth by reducing human capital. There is an association between low income, food insecurity and nutrient inadequacies (Kirkpatrick & Tarasuk, 2008). Nutrient inadequacies are responsible for numerous health problems as they compromise the immune system. Food insecurity has been associated with the consumption of poor-

quality diets, lower nutrient intakes, and the consumption of smaller servings of milk products, fruit and vegetables (Kirkpatrick & Tarasuk, 2008). Dietary compromise and a compromised nutritional status are therefore outcomes of food insecurity. People's ability to develop and sustain themselves is disrupted (Piot, 2003) by the "twin" existence of the HIV and AIDS pandemic and food insecurity.

This state of affairs calls for prompt action in saving humanity. There are currently a number of organisations that are addressing food security in a variety of different ways. Government needs to speed up service delivery in order to save the young generation that is more vulnerable, as these children are losing their providers and caretakers. Lastly, the adoption and adaptation of actions proposed by the World Food Programme (WFP), World Health Organisation (WHO) and Joint United Nations Programme on HIV/AIDS (UNAIDS) to address HIV, food insecurity and nutrition is crucial. The proposed actions should be implemented if Millennium Development Goals (MDGs) 1 and 6 are to be achieved.

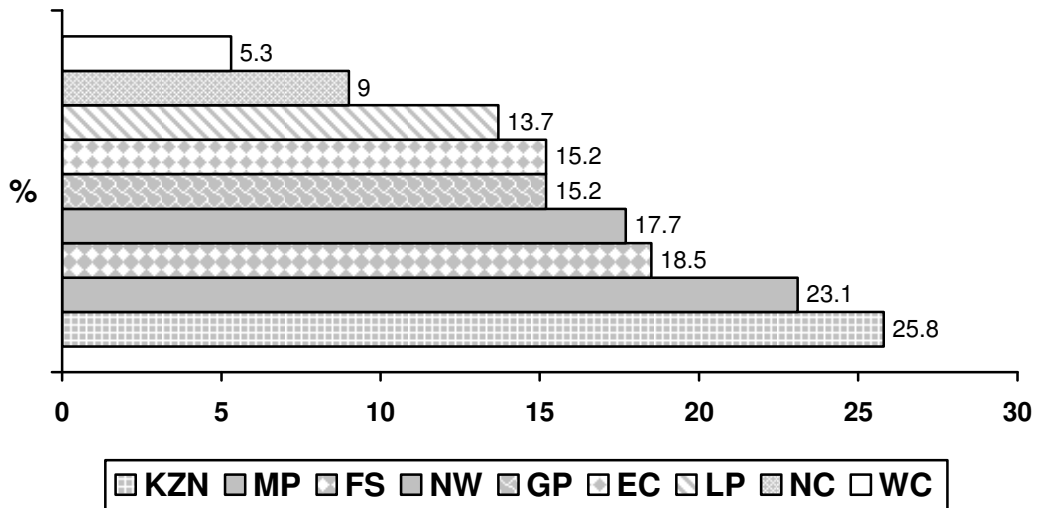
1. Introduction

The Human Immunodeficiency Virus /Acquired Immune Disease Syndrome (HIV and AIDS) pandemic is one of the biggest crises South Africa, Africa and the rest of the world are facing today. Primary infection with HIV is the underlying cause of AIDS. An estimated 33.2 million people worldwide were living with HIV and AIDS in 2007 (UNAIDS & WHO, 2007), and millions of lives have been lost through this pandemic. Sub-Saharan Africa carries the highest number of HIV-infected persons (about 70%), yet it accounts for 11% of the world population. South Africa is reported to have the highest number of HIV-infected persons in the world, with about 5.5 million people living with HIV (UNAIDS & WHO, 2007). Persons aged 15–24 years account for 90% of new infections (UNAIDS & WHO, 2007). In South Africa, Mpumalanga had the highest prevalence of HIV in South Africa, followed by KwaZulu-Natal (Figure 1)(HSRC, 2008).

The emergence of HIV and AIDS has exacerbated the hunger that was previously caused by droughts, famines and wars as it affects the economically active who are breadwinners in their households. The HIV and AIDS pandemic and increasing poverty have worsened the food crisis that has not yet been resolved (Maunder & Wiggins, 2007). Several studies have been conducted on the association between poverty and HIV. Mixed evidence was obtained by various authors as the risky behaviour is high in both developed countries (through partner change due to personal autonomy) and developing countries (through low condom usage) (Gillespie et al., 2007). It was found that material poverty increased the risk of contracting HIV through risky behaviour. In developing countries, it was reported that transactional sex was one of the modes of raising an income (Gillespie et al., 2007). According to a UN General Assembly resolution of 2006 (UN, 2006), “all people at all times, will have access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life, as part of a comprehensive response to HIV and AIDS.” HIV infection affects the general health of a person and her/his ability to perform daily activities, including the ability to generate income, and ultimately the overall quality of life. Of great concern are the nature, extent and magnitude of the impact of HIV and AIDS on agriculture and food security systems in sub-Saharan Africa. HIV and AIDS and its impact on food security has been a thorny issue among policy-makers. A study commissioned by the Food, Agriculture and Natural Resources Policy Analysis Network (FANRPAN) in seven countries in Southern Africa revealed that though good policies aimed at fighting HIV and poverty are in place in some countries, the sting of the pandemic continues to be experienced with more persons becoming infected and continuing to die of AIDS-related diseases. AIDS affects agricultural production and subsequently household food security. HIV-infected persons are severely constrained in generating an income or producing food for their households.

The Human Sciences Research Council (HSRC) released the statistics shown in Figure 1 in 2008.

Figure 1 – HIV prevalence among adults aged 15–49 years, by province, 2008



Source: HSRC, 2008

2. Food security

The UN (2006) resolution acknowledges the existence of hunger that is being exacerbated by HIV and AIDS. South Africa as a country boasts of food security at national level. However, food insecurity exists at household level. According to the NFCS of 2005 (NFCS, 2005), 20% of children aged 1–9 years were stunted. Children between the ages of 1 and 3 years consumed less than half of recommended energy levels required for optimal growth. A study conducted by Charlton and Rose (2002) reported household food insecurity in 43% of households in South Africa and it is also suggested that more than 14 million South Africans (35% of the population) are estimated to be vulnerable to food insecurity (HSRC, 2004). The HSRC (2004) report stated that all dimensions of food security – availability, stability, access to and use of food – are affected where the prevalence of HIV is high.

According to Wiesmann (2006), food security and nutrition are an outcome of national incomes, as household food security requires goods and services to be produced by the national economy. AIDS affects agricultural production and subsequently household food security. HIV-infected persons are limited in generating an income or producing food for their households. Therefore a synergistic relationship exists between HIV infection and food insecurity.

3. HIV and AIDS and food security

HIV infection affects the general health of a person and her/his ability to perform daily activities, including the ability to generate income, and ultimately the overall quality of life. Of great concern are the nature, extent and magnitude of the impact of HIV and AIDS on agriculture and food security systems in sub-Saharan Africa (Sibanda et al., 2007). The pandemic also prohibits economic development as traditional food production methods demand heavy manual labour, which is reduced when people are afflicted with HIV and AIDS. As farm workers are also infected, it would be anticipated that the general population will be affected as a result of the declining workforce and consequent low agricultural production (Sibanda et al., 2007). Thus the continuous erosion of the agricultural labour force through morbidity and mortality impacts negatively on food security in the sub-region.

The nature and extent of the pandemic's influence on food security have not been fully explored (Sibanda et al., 2007). The lack of education or low educational level of most citizens in South Africa and neighbouring states in Southern Africa is associated with a low or no income and limited purchasing power for the affected individuals. Economic status is a major determinant of household food security (Briley, 1994) as it determines the purchasing power of a household.

Malnutrition increases fatigue and decreases physical activity in HIV-infected persons (Piwoz & Preble, 2000). One of the effects of HIV infection is a person's frequent inability to go to work, thus reducing household income (Sibanda et al., 2007). Inability to go to work often results in the infected person's inability or limited ability to provide for the household, due to the progressive nature of the disease. This in turn affects the parents' ability to educate their children due to the need for children to take care of sick parent/s. Health care costs escalate (Sibanda et al., 2007), reducing the already limited resources to purchase food. The cycle of poverty ensues and the children in turn become poor adults.

HIV usually infects adults before their children. The incapacitating effect of HIV and AIDS adversely affects the parents' ability to fend for their households. The state then carries the burden of treating HIV-infected persons who cannot afford to pay medical bills. When parents die, children lose caretakers and providers. Some children lose parents before they are able to produce or prepare food for themselves. Households may be compelled to sell their livestock and exhaust future savings in order to pay medical bills. By the time parents die, children have nothing left that they can use to live normal healthy lives.

The relationship between AIDS, poverty and food insecurity is a vicious cycle, but women seem to be more vulnerable, as food insecurity may increase exposure to HIV when women and girls may engage in transactional sex in order to generate an income to feed their families (Wiesmann, 2006). Thus, poverty increases the risk of HIV infections among affected populations (Gillespie et al., 2007; Leyenaar, 2004). Another concern with regard to vulnerability of the household to food insecurity is the fact that HIV infection occurs among parents before children are affected, thus eroding the provider base for the household and reducing its purchasing power.

South Africa is the only country in the region that offers state pension and social grants to its citizens. However, given the high cost of medical care, the state pension is inadequate to meet the needs of an average family as the cost of living is high. The state pension of about R1 000 translates to an income of US\$100 per month. For a family of 5, each family member has approximately US\$20 per month, which is less than US\$1 per person per day. Infection of the economically active family members leaves the elderly with a burden to meet financial needs in the family. In cases where there is no elderly person in the household, or in child-headed families, the older child is left to fend for the younger siblings and dying parents. Children exposed to this situation become victims of sexual abuse. The child has to offer sexual favours in return for money or food. Risky behaviour coupled with low purchasing power increases the risk of HIV infection. Low purchasing power predisposes a household to inadequate food and nutrient intakes and ultimately to poor nutritional health.

4. HIV and AIDS, nutrition and food security

Another adverse effect of food insecurity is its effect on the health of individuals and subsequently economic growth by reducing human capital. There is an association between low income, food insecurity and nutrient inadequacies (Kirkpatrick & Tarasuk, 2008). Nutrient inadequacies are responsible for numerous health problems as they compromise the immune system. Food insecurity has been associated with the consumption of poor-quality diets, lower nutrient intakes, and the consumption of smaller servings of milk products, fruit and vegetables (Kirkpatrick & Tarasuk, 2008). Dietary compromise and a compromised nutritional status are therefore outcomes of food insecurity. People's ability to develop and sustain themselves is disrupted (Piot, 2003) by the "twin" existence of the HIV and AIDS pandemic and food insecurity.

Nutrition is an important component of comprehensive care for HIV-infected persons, particularly in rural areas where undernourishment and food insecurity are common (WHO, 2004). Poor nutrition accelerates morbidity and disease progression in HIV-infected persons.

Peter Piot (Piot, 2003: 1–2), Executive Director of UNAIDS, recounts the following episode: "I was in Malawi and met with a group of women living with HIV. As I always do when I meet people with HIV and AIDS and other community groups, I asked them what their highest priority was. Their answer was clear and unanimous: food. Not care, not drugs, not relief from stigma, but food." This observation clearly demonstrates that food insecurity ranks very high among the forms of suffering experienced by humankind. The explosion of the orphan population due to the rising prevalence of HIV and AIDS brings more food crises (Piot, 2003). An orphaned child is at risk of a poor nutritional state early in life, and such children's chances of being well educated are compromised. Either the children drop out of school early or they do not even enter the school system. HIV and AIDS has just added to the suffering that has been experienced by generations of underprivileged households and population groups. Poor households already struggling to fend for themselves now face serious threats to their infrastructure, workforce and economies.

As food prices continue to rise, the cycle of poverty and hunger is perpetuated. The current economic crunch worsens the situation among the poor. Inability of a child to be educated or dropping out of school early in life affects future income potential and acquisition of basic skills such as farming, as farming skills are acquired through education. Lack of skills is evident in Africa where sufficient food is produced, but there are no food preservation and storage skills. Food preservation methods and the skills needed to retain the nutritional quality of food are still lacking. Food production itself is a skill as there are pests and diseases that destroy farmers' produce, and farmers need appropriate technologies and skills relating to these in order to effectively manage pests and diseases.

4.1. Strengthening immunity through nutrition

The NFCS (2005) revealed inadequate energy intakes of macro- and micronutrients in children. For South African children as a whole, the total energy intake and dietary intakes for calcium, iron, zinc, selenium, vitamins A, D, C, and E were less than 67% of the recommended dietary allowance: .

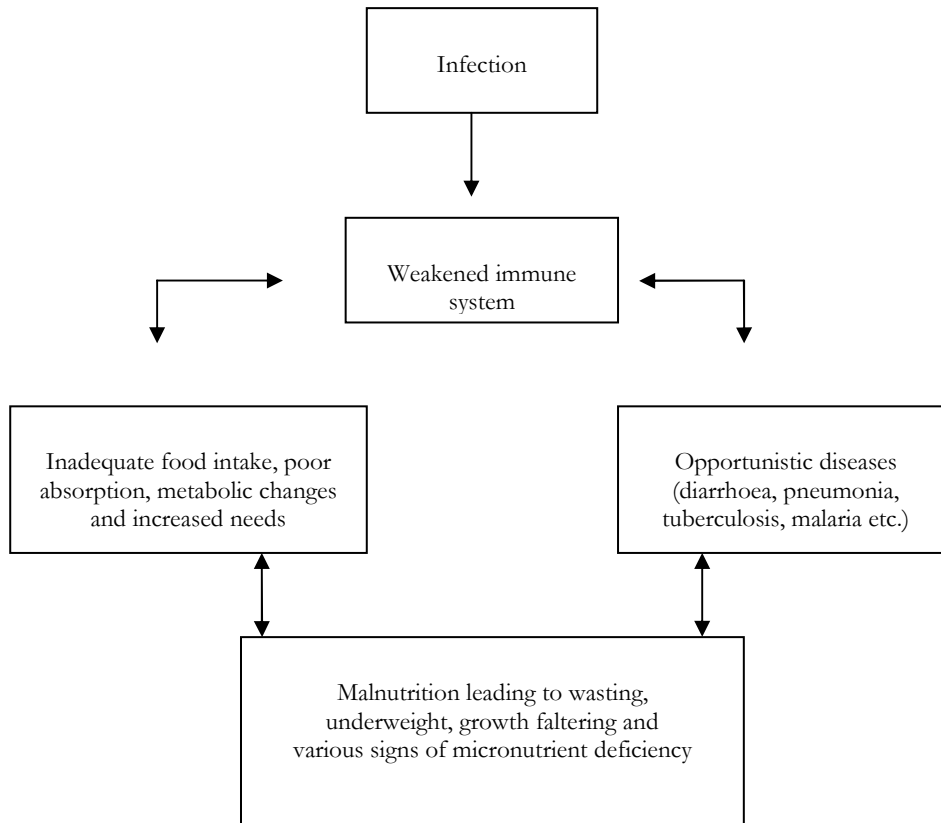
In South Africa, food insecurity is not only a problem in rural areas. With urbanisation, many people migrate from rural to urban areas. Urbanisation has both beneficial and adverse effects on the health of individuals. Adverse effects include poverty and a poorer lifestyle because of lack of proper accommodation and unemployment (Madava, 2000). As proper accommodation is expensive, the majority of poor people live in informal settlements. Traditional diets characterised by low-fat, high-fibre foods, as well as high intake of vegetables and fruit, legumes and whole grains are replaced with high-fat, low-fibre, low vegetable and fruit intake when rural people migrate to cities (Popkin et al., 2001; Tucker & Buranapin, 2001). This change in dietary behaviour is referred to as nutrition transition.

Good nutrition is the first line of defence in warding off the detrimental effects of HIV and AIDS (Morris, 2003). With good nutrition, people living with HIV and AIDS (PLWHA) live healthier, longer lives. A poorly nourished person is at risk of infection by this and other diseases, as the body is not equipped to defend itself from invading infectious agents. When a poorly nourished person gets infected, two possibilities are that the person will either take a long time to recover or he/she will die. The relationship between the quality of diet and infection is cyclical. This is illustrated in Figure 2. The person infected with HIV gets worse each time, as the disease progresses from one stage to the next. Without proper nutrition, the disease progresses faster.

The relationship between immunity and nutrition is well established (Fenton & Silverman, 2004). As Figure 2 shows, the infection attacks the immune system. As a result of the infection, the gastrointestinal system cannot function properly. The body is unable to digest, absorb or utilise food that has been consumed, due to diarrhoea. The presence of fever affects food intake and a person cannot consume sufficient food to meet nutrient needs (FAO & WHO, 2002). In order to fight infection, nutrient requirements are increased, but the body is unable to provide the nutrients required. The person is now exposed to more infections such as tuberculosis, pneumonia, etc., as the immune system is further weakened (FAO & WHO, 2002). However, if a person who is infected is able to consume adequate food to meet nutrient requirements, the body is empowered to fight infection and to sustain life.

Figure 2 – The cycle of nutrition and infection

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Source: WHO, 2004

4.2. HIV and AIDS and nutrition

The process of HIV infection leading to the development of full-blown AIDS occurs over a period of time, and this affects the quality of life of an individual. Good nutrition is critical to HIV and AIDS disease management (FAO & WHO, 2002). For an infected person to experience the benefits of medical treatment, a healthy diet is crucial. Nutrients that are lost through diarrhoea need to be replaced. An adequate energy intake is required to maintain weight and to prevent further weight loss. A balance of both macro- and micronutrients should be maintained to provide optimal health. Nutrient supplements are also provided when it is not possible to meet nutrient requirements through diet alone. In sub-Saharan Africa, the main resource for land preparation is human beings (65%), 25% is supplied by animal traction and 10% is mechanised (Hunter, 2007). Most rural residents depend on agricultural food production, and this requires healthy people (Hunter, 2007). Thus HIV and AIDS adversely affect food production.

Among the devastating effects of HIV is the vertical transmission of the virus from mother to child through breast milk (Kallings, 2008). Since women have the potential to transmit HIV to their infants during labour and through breastfeeding, the health of women is addressed through prevention-of-mother-to-child-transmission programmes. Pregnancy increases nutrient requirements for the pregnant person. Thus the presence of HIV infection increases the burden of nutrient requirements imposed by the pregnancy. And these increased requirements pose a challenge in settings where food security is a problem. If young women are healthy prior to becoming pregnant, this increases the likelihood of a healthy child being born. This is one of many reasons why food security issues must be addressed throughout the life cycle.

5. Daily nutritious meals

People living with HIV and AIDS require an adequate consumption of both macro- and micronutrients in order to fight infections and to enjoy healthy active lives (Morris, 2003). Healthy meals are not an exclusive right of the privileged. Both privileged and underprivileged persons should enjoy healthy, nutritious meals. Nutritious, balanced meals maximise HIV management, counteract chronic debilitating conditions and prevent or delay loss of muscle mass. On the other hand, food insecurity limits food selection (Kirkpatrick & Tarasuk, 2008). The outcome of a healthy nutritious diet is the ability of the person living with HIV and AIDS to be able to perform the normal activities of daily life and generate an income.

5.1. Macronutrients

The presence of an infection in the human body increases energy requirements and the increase is related to the stage of the HIV present in the body. Energy requirements increase by 10% in asymptomatic persons (WHO, 2005). This increase accommodates body weight maintenance and physical activity. In children increased energy is required to cater for growth needs. In symptomatic infected persons, energy requirements increase by 20% to 30% to maintain adult body weight (WHO, 2005). In HIV-infected children who are losing weight, the increase in energy requirements can be as high as 50% to 100%.

The recommended protein intake for PLWHA is between 12% and 15% of total energy intake, as for normal adults. There is no scientific basis for increasing protein intake for HIV and AIDS-affected persons (DoH, 2006). There are also no recommendations for increasing fat intake in PLWHA; 30–35% of total energy intake should come from fat.

5.2. Micronutrients

Micronutrients occur in small amounts in food (Gallagher, 2004). These are vitamins and minerals that are widely distributed in a variety of foods. Vitamins and minerals such as vitamins A, B-complex, C and E and selenium and zinc help the body to fight infections (Anderson, 2004; Gallagher, 2004). Antioxidant vitamins and minerals prevent oxidative stress (Banki et al., 1998), which accelerates immune cell death and slows down the HIV replication rate (Allard et al., 1998; Rosenberg & Fauci, 1990). Inability of infected persons to consume adequate food to meet nutrient needs requires that some nutrient supplements be given to PLWHA. PLWHA if suffering from tuberculosis (TB), should be given a multivitamin and mineral supplement that provides 100% of the recommended intake of these nutrients. Several benefits of short-term antioxidant supplementation have been reported, viz. improvement in body weight and body cell mass (Shabert et al., 1999), reduction in HIV RNA levels and improving CD4 cell count, and reducing the incidence of opportunistic infections (Muller et al., 2000). The need to improve the health status of PLWHA through supplementation of diets cannot be doubted as these persons may be unable to meet

their dietary requirements through diet alone. Nevertheless, a nutritionally adequate diet forms the basis of optimum health. Muller et al. (2000) do not claim that supplementation affects CD4 count or plasma viral load. The quality of life of PLWHA is, however, improved.

When a well nourished person is infected by HIV, the ability of the body to handle the infection is greater than that of an undernourished person. Persons with HIV and AIDS have been reported to live for many active years in countries where the populations are well nourished. Food security status is of prime importance in any country that is serious about combating the HIV and AIDS pandemic. Women play a major role in infant feeding. In South Africa and third world countries, breastfeeding is the safest mode of infant feeding as the majority of women cannot afford to provide safe formula feeding. However, the vertical transmission of the virus from mother to child means that the safety of breastfeeding by infected mothers is questionable. Breastfeeding requires a well nourished mother. Formula or replacement feeding carries several health risks in developing countries. Unsafe drinking water makes formula feeding an unsafe feeding option. Formula feeding requires money to buy commercial products. If replacement feeding such as fresh animal milk is used, it requires households to have healthy animals (cattle and goats) that will provide the milk. When addressing food security, safe drinking water should be part of the plan in order to avoid gastroenteritis. The health of animals whose milk is used for infant feeding needs to be taken into consideration since diseases such as TB can be transmitted from cattle to humans if the milk is not properly pasteurised (Garcia, 2006). Cow or goat's milk can be a good alternative infant feeding option if communities who own livestock are educated about farming.

6. HIV and AIDS – lessons for food security programmes

Findings of the NFCS (2005) indicate a need for drastic measures aimed at addressing food security problems at household level. Food security programmes are classified into short- and long-term measures to address acute problems and alleviate long-term problems respectively. South Africa is currently implementing the following strategies in order to address food insecurity among the underprivileged: social grants, food parcels, school feeding schemes, nutrient supplements for HIV-infected persons and food fortification.¹ Maize is the staple food for the majority of South Africans, and since maize is deficient in niacin, pellagra used to be common in disadvantaged households. The Department of Health therefore resolved to fortify maize meal with niacin.

The first four strategies listed above are short-term as they may not be sustainable, and they will not ultimately solve the problem of hunger and undernourishment. The former Deputy President, Phumzile Mlambo-Ncquka, has reiterated that the grants cannot be sustained (Ministerial Skills Indaba, 2007). Distribution of food parcels is also a short-term measure which may be good for persons in stages 3 and 4 of HIV and AIDS disease (see Appendix A). Providing nutrient supplements is beneficial, as infected persons have a poor appetite, and the supplements are necessary to ensure a nutritionally adequate diet. However, supplements cannot be consumed alone; they are taken together with food. Regarding food fortification, the national Department of Health has identified foods that should be fortified with nutrients in order to improve the micronutrient intakes of the population. Consumers need to be educated about the benefits of fortified foods and also what foods should be eaten in conjunction to maximise, rather than minimise, digestion and absorption of nutrients.

There are currently a number of organisations that are addressing food security in a variety of different ways. These include the World Food Programme (WFP), Food and Agriculture Organisation (FAO), United Nations Children's Emergency Fund (UNICEF), United Nations Educational, Scientific and Cultural Organisation (UNESCO) and World Health Organisation (WHO) (WFP, 2007). The WFP promotes agriculture and crop production, land and water development and road development. It works in conjunction with the FAO. The FAO promotes agriculture and crop production, and provides seeds and tools. UNICEF is also a partner of the WFP in fighting child hunger, as well as increasing education, nutrition, combating HIV and AIDS and providing emergency relief. It focuses on increasing primary school enrolment and retention for girls, reducing malnutrition and reducing the risk and burden of HIV and AIDS, especially for orphans and vulnerable children. UNESCO works in collaboration with the WFP to promote education, particularly for girls, through the school feeding scheme programme. It offers HIV and AIDS

¹ Food fortification is addition of nutrients to commonly consumed foods such as bread and maize meal during food processing by millers to enhance the food's nutritional value (Dodd & Bayerl, 2004).

education and HIV prevention and other programmes. The WHO focuses on public health, HIV and AIDS and technical assistance; it also focuses on nutrition strategies which improve education, health and nutrition. These organisations are concerned with long-term measures for alleviating hunger and poverty.

The common denominator in the offerings of these organisations is their interest in developing capacity in the girl-child, who is tomorrow's mother, to enable her to produce food, generate an income to feed her family, raise a healthy family, and prevent HIV for a better world.

Gillespie et al. (2007) suggest the following actions to address challenges posed by HIV and AIDS:

- Encouragement of labour exchanges between households to reduce labour shortages
- Education of orphaned children in local farming techniques
- Consideration of the gender dimensions of market access to ensure widows' access to income generation
- Review of land tenure arrangements to protect rights of widows and orphaned children
- Integration of sexual health

In order to address HIV and AIDS and food security challenges, Gillespie et al. (2007) suggested actions that should be adopted. The subject of food security should be introduced early during the school years when children are taught about food gardens. School gardens will benefit the school feeding scheme if children grow vegetables, eat them and observe the health benefits. The available land should be utilised to grow a variety of vegetables in the home and designated areas in villages. Agriculture should be a compulsory subject, particularly in rural schools, as HIV is leaving more children orphaned than any other disaster has ever done. Labour exchange should be encouraged in farming communities.

South Africa has adopted food-based dietary guidelines for planning nutritious meals (DoH, 2006). The guidelines provide a wide variety of foods that meet nutritional requirements for children and advice on how to plan nutritious meals (see Appendix B).

South Africa has a social security programme which offers grants to the underprivileged. These grants are free handouts and they will neither impart any skills to underprivileged households nor help future generations. Grants are good for the elderly and the disabled and orphans, but long-term and multiple solutions for addressing food insecurity should be sought and implemented. Social grants are a short-term strategy as their sustainability is questionable. Food handouts are distributed by the department of social services. School feeding schemes should incorporate food production skills for learners. Any programmes that are aimed at reducing food insecurity should incorporate health, sanitation and education, particularly of females (Maunder & Wiggins, 2007). The food insecurity problem is multidimensional in nature. Thus the solution should integrate various departments and community-based organisations. Sustainability of food security programmes is

crucial if the curse of hunger is to be eliminated. In summary, the following aspects should be covered in food security programmes:

- promoting school, community and home gardens, and educating children, particularly young girls;
- using school and community gardens to provide school meals for children in local communities;
- educating communities about the significance of consuming fortified foods;
- ensuring availability of and access to nutritious food that will eliminate some of the challenges facing undernourished HIV-infected persons.

Workshops that were conducted by the author for the North West Provincial Department of Health in 2005–2007 revealed that there was a lack of coordination of efforts between the Departments of Health and Social Services. As a result, the nutritional quality of diets that were provided to HIV-infected persons was not prioritised. After a three-day session on Nutrition and HIV, a workshop that was conducted by the Department of Health, participants (community members) came up with the following food basket for a low-income household of four (two adults and two young children). The food basket suffices for a month.

- 25 kg unrefined maize meal @ R129.97
- 2 kg mabella meal @ R16.78
- 1 pocket potatoes @ R49.50
- 2 kg Philani (morvite) @ R23.58
- 2.5 kg samp @ R16.65
- 2 kg soya mince @ R36.69
- 3 kg dried beans, lentils, dried peas @ R66.25
- 5 dozen fresh eggs @ R63.50
- 1 litre cooking oil @ R35.99
- 800 g peanut butter @ R29.99
- 1 kg tinned fish @ R49.46
- 2 kg whole milk powder @ R77.98
- 500 g salt @ R3.19
- 2.5 kg sugar @ R15.98
- 200 teabags @ R29.99
- fresh fruit and vegetables² to be obtained from local supplier or home garden daily or on a weekly basis

² Wild and home-grown fruit and vegetables are available in some rural areas.

Total (excluding fruit and vegetables) = R645.52

This food basket makes provision for a variety of foodstuffs and meets basic nutritional requirements at low cost. Both macro- and micronutrients are consumed on a daily basis. This basket (modified as needed) can be the basis for developing and improving current dietary practices in order to improve the food security, nutritional and health status of HIV-infected persons, as well as the general healthy population.

7. Recommendations for responding to food security and HIV and AIDS

The 2001 UN General Assembly Special Session Declaration of Commitment on HIV and AIDS and the 2006 Political Declaration on HIV and AIDS, recognise the need “to integrate food and nutrition support with the goal that all people at all times will have access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active healthy life, as part of a comprehensive response to HIV and AIDS” (UN 2001, 2006). Government should endorse the Millennium Development Goal (MDG) to reduce by half the proportion of people who suffer from hunger, and to halt and begin to reverse the spread of HIV by 2015 (MGDs 1 and 6). These two MDGs should be addressed hand-in-hand with HIV, food security and nutrition. The WFP, WHO and UNAIDS recommend a multisectoral response to HIV, food security and nutrition interventions and they recommend actions for governments. South Africa should adopt these actions and adapt them where necessary:

- Use poverty reduction strategies, social policies and sector/district local plans – including disaster preparedness plans – to sustain livelihoods and to integrate approaches to food security and nutrition with responses to HIV.
- Incorporate nutrition indicators into HIV monitoring and evaluation activities, including monitoring and evaluation of the national AIDS strategy.
- Work across sectors and with civil society and PLWHA to reach the most vulnerable, ensuring that food and nutrition assistance is relevant, appropriate and does not fuel stigma and discrimination.
- Integrate HIV and food and nutrition programmes by, for example:
 - expanding nutritional support, including support for pregnant and lactating women and children – emphasising appropriate infant feeding as part of the strategy of prevention of mother-to-child transmission of HIV;
 - supporting adequate dietary and nutritional intake as part of successful treatment programmes, through provision of nutritional counselling and linking individuals to services (World Bank, 2007).
- Engage the private sector in developing local food fortification initiatives that generate income and in linking these initiatives to treatment interventions.
- Ensure agricultural policies and programmes are HIV-responsive by, for example:
 - improving livelihood options in rural areas, thereby reducing the need to migrate to cities;
 - integrating HIV information into agricultural extension programmes;
 - enabling affected households to participate in agricultural production and marketing by accommodating the need to be near home to care for sick relatives;

- using cooperatives and farmers' organisations as entry points for mitigation, care and support activities, such as establishing community health insurance funds or social funds to provide care and support to orphans and other children made vulnerable by AIDS.

8. Conclusion

HIV and AIDS can be tackled if communities participate in addressing food security challenges. Provision of antiretroviral drugs alone will not address the problem. The solution for HIV and AIDS and food security requires a multisectoral approach. This includes involvement of ministries of health, education, agriculture, social services, the corporate sector, faith organisations etc. Communities need to be made aware that agricultural skills are essential in improving the health of both healthy and infected persons, and the economic development of a nation. Through a nutritionally balanced diet, infected persons can live longer, healthier lives and continue to be economically active. Antiretroviral therapy may increase appetite if some of the medicines are taken with food (World Bank, 2007). Healthy people who are well nourished are better able to fight infections than poorly nourished ones. The solutions to the problems of HIV and AIDS and food insecurity should be categorised into short-, medium- and long term ones, and basic issues that require immediate attention should be prioritised. Major aspects of the solutions such as climate change, economic issues and water sanitation and safety that need a multisectoral approach should receive attention in future national and regional plans.

This paper therefore proposes the establishment of a team comprising agricultural officers, veterinary surgeons, nutritionists, health professionals, economists, researchers, educationists and community members to conduct action research that will address food security and HIV challenges. The team should adopt the actions proposed by the WFP, WHO and UNAIDS for governments, and adapt them to the South African situation in order to address the challenge posed by HIV and food insecurity. In order for the programme to be effective, decision-makers should be co-opted into the team. The team should also assist in developing a comprehensive plan of action, and tools for monitoring and evaluating progress. The school curriculum should also be reviewed so it that produces a generation and a workforce that is capable of addressing HIV and AIDS and food security challenges. The South African government needs to commit itself to implementing policies that will be developed, adapted and proposed by the team as suggested.

Appendix A – WHO disease staging system

In 1990, the WHO grouped a range of infections and conditions together by introducing a staging system for patients infected with HIV-1 (WHO, 2007). An update took place in September 2005. Most of these conditions are opportunistic infections that are easily treatable in healthy people.

- Stage I: HIV infection is asymptomatic and not categorised as AIDS.
- Stage II: includes minor mucocutaneous manifestations and recurrent upper respiratory tract infections.
- Stage III: includes unexplained chronic diarrhoea for longer than a month, severe bacterial infections and pulmonary tuberculosis.
- Stage IV: full-blown AIDS. This stage includes toxoplasmosis of the brain, candidiasis of the oesophagus, trachea, bronchi or lungs and Karposi's sarcoma; these diseases are indicators of AIDS.

Appendix B – Food-based dietary guidelines

The food-based dietary guidelines (DoH, 2006) that have been adopted in South Africa are:

- Enjoy a variety of foods.
- Be active.
- Make starchy foods the basis of most meals.
- Eat plenty of fruit and vegetables.
- Eat dry beans, peas, lentils and soya often.
- Meat, fish, chicken, milk and eggs can be eaten every day.
- Eat fats sparingly.
- Use salt sparingly.
- Drink lots of clean, safe water.
- If you drink alcohol, drink sensibly.

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