

FNU Preet
Waverly High School
Lansing, MI, USA
Eswatini, Food insecurity due to HIV/AIDS

One Step Ahead For Better Lives of Swazis

Eswatini, formerly known as Swaziland, is an absolute monarchy based country in southern Africa, with an area of 17,364 sq.km (6702.7 sq.mi) and population of 1.116 million people. It shares borders with South Africa and Mozambique; in addition to that, it is a landlocked country with a subtropical climate. Only 24.6% of the population lives in urban areas, while the rest are inhabitants in rural places. 68.3% of the land in Eswatini is agricultural (“Eswatini- World Factbook”), but it has a fairly diversified economy. Agriculture, mining and forestry form 13% of GDP whereas manufacturing of textile and sugar related processings forms 37% of GDP; other services, including government, make 50% of GDP (“Economy of Eswatini”). Eswatini is dealing with extreme poverty, rapid population growth, the highest rate of HIV/AIDS in the world, and a deteriorating economy, which worsens the situation (Eswatini-World Factbook).

An average family in Eswatini lives in a tenure system where the family holds a land, and it has huts for the head of the family, mother, wife and children; the kitchen and storeroom; and enclosed area for cattle. Cattle mostly serve as a source of milk, and it is also counted as a wealth which is used for social and ceremonial occasions. Typical lifestyle of the family and their food source exclusively depends on the seasons. Since there are heavy rains in summer, men and women plant gardens and plow corn and millet. However, starvation makes summer months really hard for Swazi families unless someone from a family working in the city sends money. In autumn, families harvest and thresh dried grains, while in winters, they survive by hunting, and activities move to homesteads (“Settlement Patterns”).

At the present time, primary education in Eswatini is free, but parents have to pay for their children's secondary school; unfortunately, 58.9% of the rural population lives below the national poverty line, which is a great barrier to education. Parents donot have funds so that their children could have access to education; this makes the cycle of poverty continue. Another hurdle towards access to education is HIV/AIDS; 27% of those who have the virus are adults between the ages of 15-49 years. Money that could go towards education shifts for the treatment of ill family members, and if there is no one to take care of the ill then the child has to stay, affecting school attendance.

In some conditions if parents of a child have HIV/AIDS then the child has to earn for the family (“6 Barriers to Education in Eswatini”). Even though primary health care is free in Eswatini, provisions are in poor quality to meet the needs of people. Eswatini falls into the poor category when it comes to reproductive health care conditions because the nation is fulfilling only 84.2% of what it is expected to fulfill based on income (“Health in Eswatini”). Average life expectancy for both men and women is 57 years, which is much lower than the global average. Population growth is slightly lower than world average; on the other hand, birth and death rates are higher than world average. These are in part due to the prevalence of HIV/AIDS in the adult population (“Settlement Patterns”).

HIV is a virus which attacks the human immune system, leading to many other vulnerable diseases such as cancer, Hepatitis and TB. HIV is most likely to spread through unprotected sexual intercourse, contact with body fluid of infectious person, and by sharing intravenous drug equipment with infectious person. Although HIV remains forever in one’s body and no effective HIV cure exists, HIV medicine can help people live long and healthier life and prevent transfer of virus sexually. However, if one does not take HIV medicine, which is recommended, HIV can lead to AIDS, a late stage of HIV infection; and people with AIDS can typically survive for only 3 years (HIV.gov).

Food insecurity and HIV are interrelated and intensify the harmful effects of each other. As the energy needs of an asymptomatic person increases by 10 percent in adults, 20-30 percent in symptomatic adults and 50-100 percent in children, so nutrition becomes the greatest need of an infected person. Most of the countries with high HIV infection rates are dealing with food insecurity because it has a negative impact on nutritional status of people who are affected by HIV. One of the reasons for discontinuation of medication is not having food due to food insecurity; likewise, HIV contributes to food insecurity by reducing the work output of the infected people, their income and household activities, leading to less food availability and poor diet.

Over the last decade, the HIV infection cases among adults of age 15-49 years has decreased from 31% to 27%. This decline is due to antiretroviral treatment (ART); even though 86% of the HIV infected people are on ART still 94% of those remain virally suppressed due to food shortage. HIV still remains one of the biggest public health concerns in Eswatini (“HIV and AIDS in Eswatini”). Lack of food security not only leads to increasing risk of HIV/AIDS but also makes it difficult for people who are already infected.

ART is found to be less effective to boost the immune system in Eswatini because many people are suffering from malnutrition and food deficiency. Food insecurity due to HIV has reduced Swazi household productivity and income. HIV among Swazi women is

more common than in men due to food insecurity which creates high risk of sexual behavior among women, including intercourse without condom, transactional sex, and sex work. In fact, sex workers in Eswatini are reported to be caught in cycle of HIV symptoms and food insecurity. Many women in order to come out of poverty and have food security, engage into sex work to gain income which then leads to high risk of HIV not only in sex workers but in others involved, too. On the other hand, UNICEF estimated that 70% of urban females aged 15-49 years had knowledge and information about HIV, while 55% of the rural females were unaware about HIV. It is found that most Swazi men refuse to have a test for HIV due to fear of having it positive and side effects of ART; this becomes an extensive cause of spread of infection among men and as men are most likely to be source of income in the families, many families lead into poverty, hunger and food insecurity (AIDS wikipedia).

As food insecurity and HIV spread are unidirectional, causes of it have been poverty, unawareness about HIV, hunger, discontinuous antiretroviral treatment due to lack of food security, and proper diet of both symptomatic and asymptomatic people. Considering solutions could be numerous: a scientific solution, economical solution, social work solution or a combined solution. This problem has to deal with infection which requires scientific source and method to regulate nutrition among infected people while to reduce food insecurity in a low income country would require some fundings; awareness programs will also have to be introduced.

The United Nations Programme on HIV/AIDS (UNAIDS) came up with an idea of a 90-90-90 treatment program for the awareness and ART continuation. The Nhlanguano AIDS Training Information and Counseling Center (NATICC) is a non-profit NGO founded in 2002, provides training and counseling regarding HIV/AIDS in Eswatini (Wikipedia). Although many awareness programs, programs for regulation of ART and funds are being done by international and national organizations, Eswatini needs to deal with food insecurity problems to stop or prevent the spread of HIV.

According to the World Health Organization (WHO), the percentage of energy intake has been identified: an asymptomatic adult energy intake should increase by 10%; symptomatic by 20%-30%; and infected children should increase intake by 50%-100% to maintain body weight. While for pregnant women, it is not identified accurately but is suggested to increase intake as normal adults. Because the main production of Eswatini has been corn and millet, certain nutrients and extra amounts of energy needed by the HIV infected people could be introduced into the grains during harvesting time through fertilizers and laboratory experiments.

An average person needs 8700 kilojoules (kj) of energy per day (Health Direct) which means that an asymptomatic will need of energy per day, symptomatic adult will need

10,440kj to 11,310 kj per day ,and infected children will need 13050 kj to 17,400 kj per day . Crop amounts being lower and nutrients being insufficient are the main causes, so seeds need to be maintained in such a way that even if the amount of crop is small the grains have enough supply of energy in it to keep the infected people healthy. One procedure known as food fortification has already been introduced in today's world to overcome the increased amount of malnutrition in densely populated countries. In fortified food such nutrients are introduced in the food which are not found naturally, for example addition of vitamins into milk. Processing food for fortification could be applied in Eswatini to increase the amount of energy and other nutrients signified for HIV patients in certain amounts of crops.

Grains produced in Eswatini are mostly flowering plants (angiosperms) which means that seed's development and nutrition is dependent on the endosperm. Endosperm is part of a seed which nourishes the embryo; it stores protein and other nutrients for the seed. Endosperm helps seed grow faster by nourishing it. Seeds which are bigger in size have bigger endosperms to help them grow faster. This could be one of the factors which could be changed for faster and healthier growth of seeds. Size of the endosperm in specific seeds could be changed by changing the genetic coding in polar nuclei in gametocytes. As the size of the endosperm increases, it could contain more nutrients, starch and protein, which could lead to faster growth of seeds. This process would require much research work with germination of seeds and excess laboratory work to be experimented by botanists. If increasing the size of endosperm by changing genetic code works, then another question would arise that would this change be transferred to other seeds by fertilization or this process have to be performed on seeds again and again.

Amount of nutrients in food depends on the soil fertility. Quality of soil differs from place to place and if soil is well supplied with nutrients using fertilizers , then the crops would be of better quality. Many methods have already been developed to improve the fertility of soil , but countries like Eswatini have less adapted such techniques and continue with the old farming methods. This is difficult for food security conditions in HIV infected people because they are not even gaining the normal diet while they need sufficiently more nutrients than normal people; especially in children, it is challenging to maintain a healthy body because they need 50%-100% more to keep themselves from malnutrition.

To increase the quality and amount of food in Eswatini for the people, national and international organizations together need to introduce new techniques and methods for agriculture. This could be done in several ways: introduction and briefing of the importance of science could be introduced to the educated population in Eswatini, who could later provide education and techniques to the agricultural part of the area. These newly introduced techniques could lead to many different jobs in Eswatini which would later increase the income, promoting greater food security.

The requirement of a certain amount of energy intake for people suffering from HIV could be improved when new agricultural and genetic engineering methods are applied. Another solution could be to have special areas where food for HIV infected people is grown. The purpose of the special area is to have a department of agriculture and scientific research, in which methods for growth of food for HIV patients are experimented to increase the amount of nutrients. Method of food fortification could be applied here in a way that nutrients, which are essentially required for patients, are introduced in the local crops so that even if the food is not available in excess quantity, the foods still meet the needs of patients to keep a healthy body and continue ART.

This solution could also make enormous amounts of jobs available for local people, it would be better if infected people are introduced to this idea and are educated with certain specified farming methods for specialized food production for themselves. The Nutrient increment method could be used in dairies too, as many people in Eswatini have cattle in their households observation of the food which people give to feed their cattle would help to apply the same method of increasing the nutrients in milk, especially. If these nutrients through genetic engineering methods are introduced in cattle, milk is produced containing nutrients which are required by the infected people. If variation in food for cattle could increase the quality and quantity of milk, it could help infected people easy access to more sources in their own households.

These methods require a lot of research and investment in science. Of course, it would require international educational and health services and development in Eswatini. Food specified for the infected people could be introduced into the country with ART. If specialized food for infected people is introduced with ART, this would allow more people to be aware of treatment and their conditions as food is the basic need. As many international organizations such as UNAIDS and WHO are working with national organizations to increase the awareness about HIV/AIDS and ART, these could also introduce the new methods of food production and significance of food introduced or given to people with ART. These awareness could be introduced to local people by having workshops in rural and urban areas; agricultural development education for farmers; and an additional effective measure would be through filming and recording educational content. These methods could be really effective for ensuring food security among the HIV/AIDS infected people.

While these methods have merit, the literacy rate of Eswatini is not very high, which means that research work would require an international community of scientists. These research efforts are a long and steady process because one has to be careful of side effects and disadvantages. Nevertheless, if these methods could be introduced in Eswatini, it could help the numerous problems of food insecurity among infected people and also could provide job opportunities not only for healthy people but also to infected people. Even if infected people do not have a sufficient amount of food available, still they could get required nutrients in small quantities of food with their treatment. This would lower the risk

of immune deficiency and extreme spread of HIV/AIDS due to food insecurity among the people of Eswatini.

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