

Summaryⁱ

Baseline study: Nutritional status, food security and fish consumption among people living with HIV/AIDS in Zambia.

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Introduction

Availability and intake of nutritious foods is essential for people living with HIV/AIDS to keep them healthy, active and to prolong their lives. A stronger, healthier body can better resist opportunistic infections, while food insecurity and poor nutritional status may hasten progression from HIV into AIDS and may undermine adherence and response to Anti Retroviral Treatment (ART). Understanding food availability and accessibility, and the nutritional quantity and quality of food intake, is imperative in resource limited settings where malnutrition and food insecurity are chronic or endemic, as is the case in many parts of Zambia.

Statistics on malnutrition and stunting among children in different parts of Zambia are increasingly available. However, knowledge is limited on which and how many nutrients are required at various stages of progression of HIV/AIDS to mitigate the disease and the best ways to assess malnourishment with regard to macro-nutrients (energy, protein) and micro-nutrients (vitamins, minerals) based on people's food intake. Different foods contain varying quantities of the nutrients required for normal health, growth and body repair in sickness. All the required nutrients cannot be found in one food type, but some foods can provide a major part of the needed nutrients. Fish is such a food that contains high quantity and quality nutrients; it contains high biological availability of nutrients such as proteins, fats, vitamins and minerals.

Under the regional programme *Fisheries and HIV/AIDS in Africa*, the University of Zambia, in collaboration with the WorldFish Center, has undertaken a baseline survey of the nutritional status and fish consumption of people living with HIV/AIDS in Zambia.

Methods

The lead researcher from the University of Zambia trained a team consisting of four university graduates on interactive questionnaire administration and Participatory Rural Appraisal (PRA) methods. The research team developed, tested and conducted the baseline questionnaire in four target areas; two rural sites and two peri-urban sites. A total of 145 respondents were interviewed at their respective health centres. All respondents signed an informed consent declaration, participation was anonymous and the research team observed strict confidentiality practices.

Data were uploaded into Excel format, after which the lead researcher and biometricians analyzed the data using SPSS software. Frequencies and cross tabulations of information from all four peri-urban and rural areas targeted were completed and the narrative results per target area were analyzed and integrated within the coded data set. The statistical analysis of the coded data using SPSS Pearson's Chi square's associations of variables showed some trends, some of which were not significant and cannot be generalized to a larger population.

Study results

a. Socio-economic profile of respondents

The study found that 40% of the sample population were female headed households, with women being the majority of the 86% of people living on less than 5 million Zambian Kwacha (\approx USD 1000) per year. Women were also found to be more heavily dependent on their children and more likely to be trapped in the widely acknowledged vicious cycle of food insecurity in a context of HIV/AIDS and malnutrition. Education levels of respondents were generally low, with half of the respondents having attended grade 1-7 of primary school, while 38% had completed grade 8-12, and 12% had never been to school. The majority (80%) of the rural female respondents claimed they had only attended lower primary school (grade 1-4) and as a consequence they were often unemployed or working as subsistence farmers. However, yields did not last for more than three months per year. While income levels were found to be generally low, those living in rural areas had more people with lower income (86% lived on 0-5 million Kwacha per year) than those in peri-urban areas (64% in the same income category).

b. Availability of fish

Fish, meat and chicken are the most commonly found animal protein sources in all four study sites. Fish, mainly bream and *kapenta* (small dried fish), was found to be most preferred, most consumed and most available to fishing and retailing households. While fish is mainly destined for sale, some fish is used for home consumption when unsold or when lacking other animal protein or vegetables to accompany the staple food *nshima* (maize meal). *Kapenta* was found to be most affordable and easily divisible among household members. Especially in peri-urban areas, consumption of fish (bream or *kapenta*) depends on purchasing power of the household and the study found that poorer households (36% in rural and 22% in peri-urban areas) rarely - probably no more than once a month - eat large fish or meat. In both rural and peri-urban areas, respondents indicated not having enough money to buy meat, chicken or whole large fish, as they are expensive. This is another reason why *kapenta* is popular.

c. Fish consumption and preparation

The most common staple for lunch and supper was *nshima* (maize meal) with vegetables, *nshima* with fish, and *nshima* with beef. Most families (75%) were found to eat together, while in some households (15%) the children ate first; in a few households (10%) the father ate first. In both rural and peri-urban areas it was found that the prevailing practice was to give every household member their food on their own plate, which allows children to get an equitable share and be able to finish their meal at their own pace.

The amount and types of fish consumed varied among the respondents in the different target areas. The majority of respondents claimed to prefer fresh and dried bream, but actual consumption depends on purchasing power of the household. Respondents had a strong preference for fresh fish, but could only afford *kapenta*, which is highly nutritious but not as much preferred as large bream. Dried *kapenta* was often cooked in groundnut sauce in order to extend the small amount of fish, or cooked for a long time and added to large amounts of vegetables such as cabbage, pumpkin leaves, onion and tomato, to make the vegetables taste of fish. This indicates respondents' preference for fish, but the nutritional losses of these types of preparation have yet to be determined.

Kapenta was said to have a bitter taste, so some respondents were found to remove the stomach. As a consequence, a lot of nutrients are removed, reducing the potential nutritional benefits. A few respondents claimed to develop allergic reactions to *kapenta*, but for the majority of respondents it is the default animal protein source when income does not allow for more expensive fish or other animal protein sources.

All respondents reported the same process for cleaning large fresh fish before cooking; fresh fish is cleaned by removing gills, intestines, scales, and washed in clean water, the fish is then boiled whole or cut in half in a saucepan with water, a little oil, tomato and onion if available. The cleaned fresh fish can also be fried in cooking oil and gravy made from fried chopped tomato and onion. Preparation of dried fish also appeared to be similar among most respondents. Some respondents stated that they rinse the dried fish with warm or cold water, while others first clean the dried fish by removing gills and excess scales. The dried fish is then washed in warm water and boiled in water as a whole or cut in pieces to fit the pot. Cooking oil, tomato and onion can be added when available. Another method of preparation includes washing the dried fish, allowing it to soak a little, then rubbing it with salt and roasting it over a charcoal fire, on a grill, or frying it in a pan. Dried fish can be boiled with different types of vegetables as extenders. Preparation of small fresh fish (*kapenta*) was done in the same manner by all respondents; removing scales, gills and intestines, then washing it in cold water, sun-drying it if possible, and then pan-frying or boiling and adding pounded groundnuts.

Fish powder supplementation was received by some respondents in the two rural sites through an NGO at their health clinic. The fish powder is mixed with pounded groundnuts and added to porridge or used it as sauce for *nshima*. Some added the powder to vegetables, which made it taste like dried fish with vegetables. The respondents in the peri-urban sites had never received fish powder supplementation from external sources, including their respective clinic. Some elderly respondents recalled that many years ago, the under-five clinic advised them to pound dry *kapenta* and add it to children's porridge to help prevent malnutrition. The study did not find evidence that these practices still exist.

The study found a trend that more respondents prefer to consume processed, mostly dried, fish (72%) compared to fresh fish (28%). Respondents from the rural site next to the river were no exception, although one would assume these people to have more access to fresh fish. Most respondents (93%) in all four target communities, when asked what fish they preferred, indicated they preferred large rather than small fish.

Conclusions and recommendations

Although further research and stronger data sets are needed, the authors draw some tentative conclusions. The main point is the importance of having reliable access to food for health and survival. Households without regular income were found to be more vulnerable to food insecurity, and faced poor health and disease as a consequence, especially female headed households. Fish is the most preferred source of protein, with *kapenta* (small dried fish) being the most commonly consumed animal protein, although not consumed in large quantities. However, access to fish depends on availability of cash and most people living with HIV/AIDS

are too poor to even afford frequent consumption of the accessible, cheaper *kapenta*. While *kapenta* is easy to share and extend with vegetables, real quantitative intake seemed to be low due to intra household sharing of food. Further research is required to confirm actual intake of protein and other foods per household member.

Nshima is the major staple for all respondents, who interpreted “being food secure” with eating this traditional Zambian maize meal 2 to 3 times per day. The study confirmed that rural households were much poorer than peri-urban households, based on comparison of occupation, income and individual household asset ownership. For most respondents, low income combined with low asset ownership contributes to a vicious cycle of chronic hunger and food insecurity. A variety of nutrition information is provided, but a disparity in nutrition information and education between the rural and the peri-urban target areas was noted. Information provided included the importance of good nutrition and examples of what people living with HIV/AIDS should eat or avoid consuming. However, due to regular or permanent lack of food at household level, most respondents cannot practice the well intended training and information on nutrition which they have received at their respective health centres.

The data gathered has provided an insight into the often desperate food insecurity and poverty faced by rural and peri-urban households where one or more household members are living with HIV/AIDS. Based on study findings and analysis, key recommendations include:

- ❖ Increased funding for studies on fish and food consumption among people living with HIV/AIDS in Zambia;
- ❖ Studies on the effects of fish on Anti Retroviral Therapy (ART);
- ❖ Studies on the effectiveness of sustainable income generating activities on the food and nutritional status of people living with HIV/AIDS, including small scale aquaculture;
- ❖ Baseline information on nutritional and food security status and fish consumption of HIV/AIDS infected and affected fishing communities in Zambia.

For further information on this study, please contact:

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