

Determination of HIV infected Clients ‘Management practices and health outcome, Machakos County, 2011-2020.

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Abstract:

Background: AIDS is highly infectious and leads to mortality and morbidity rates that are high because of opportunistic infection due to immune-suppression.

Materials and Methods: A study population of 130 participants from Machakos County was selected after signed informed consent and followed in a cohort study for a three year period. The participants received health talks on beneficial adherence to ARVs, food intake that allowed biodiversity of 13 plus food species, bioavailability of micronutrients, essential vitamins and use of fortified foods alongside balanced diets and household food supply. Emphasis was made on: receiving 13 plus biodiversity of foods intake, sufficient supply of essential vitamins A, C, D, E, K and others like B Complex especially Biotin and folic Acid, prayers and professional Counseling on adherence to ARVs.

Results: After questionnaires were administered and data collected, collated and statistically analyzed, the following results were obtained; -TB 17.80%, Respiratory tract infections 41.50%, Stomach upsets and Diarrhea within Nutrition level of 13+ (34.40%) had fewer cases. Stress was prevalent at 71.10% within Nutrition 9 species and below. Nutrition level of 13 + species (33.30%) had fewer stress issues. Proper use of safe food and water lessened secondary infections leading to a 45% non detectable viral load among participants who ate 13+ species. Three people earned above 50,000/- and could easily afford the recommended diet while the rest lived in poverty.

Conclusion: A therapeutic procedure consisting of drugs, food, safe water and micronutrients’ availability dependent on biodiversity, as well as spiritual and epidemiological interplay for wellness was developed.

Key Word: Micronutrients, Biochemical, Balance, Biotin

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I. Introduction

Currently, more than 36 million people are living with HIV/AIDS with majority of them living in developing countries. Assuming each case of a person living with HIV/AIDS affects 4 other people, this disease affects over 150 million lives. The magnitude of impact of this disease demands that issues arising from its mortality and morbidity are addressed in the interest of planning and future development. Significant cost goes to surveilling, preventing, and controlling the spread of the disease and thus an effort to reduce cost of the same proved timely.

In Africa, many new TB cases and recurrent ones result from recent transmission linked to the HIV pandemic. Mbakaya et al (2004) explored Micronutrient Zinc deficiency as a possible co-factor in the transmission and progression of HIV/AIDS in Kenya. Mbakaya et al found that according to survey results, 40% of TB Cases had HIV (2004).

For individual living with HIV/AIDS, diarrhoea is a common secondary infection (Food Agricultural Organization, 2005) Diarrhoea has characteristics such as watery stool, which is sometimes bloody, vomiting and fever. If untreated, the individuals suffer acidosis, electrolyte imbalance, dehydration, circulatory collapse and even death. Diarrhoea is symptom of infection by bacteria, viral or parasitic enteric agents. This leads to exposure to pathogenic organisms that cause opportunistic infections especially among those living with HIV. It also becomes a course for their energy spent in carrying out these extraneous duties. Thus, there is a greater need for highly sustainable diets.

Other than diarrhea, another significant concern for individuals living with HIV/AIDS is unsafe water. It contributes to high mortality rates among this vulnerable population. Many rural parts of Africa and other developing countries lack the infrastructure to access clean water and therefore women and children spend more

hours daily fetching clean safe water for drinking and washing. The individuals who live in these areas whether poor or not depend on river water while those living in urban populations use piped water. These living conditions expose individuals to pathogenic organisms that cause opportunistic infections. They also become a course for their energy spent in carrying out these extraneous duties. Thus, there is a greater need for highly sustainable diets.

Despite the fact that food borne diseases affect people living in developing countries, reliable data on these diseases is unavailable due to poor or non-existent reporting systems. This makes it difficult to estimate the magnitude of impact. However, every year 3 million children die due to diarrhea while for children under 5, there are 1500 million episodes. The combined effects of diarrhea and malnutrition lead to many more millions of death. Children who are HIV negative though born to HIV mothers are at greater risk of developing recurrent bouts of diarrhea. Food and contaminated water supply is a major source of pathogens in this population. Contaminated food causes approximately 70% of diarrhea cases (Muindi, 2007) TB and HIV affect the age group of 15-45 years which comprises of the most economic and productive population. Therefore, diarrhoea linked to HIV also affects this group (Muindi, 2007).

The study group of HIV infected persons was followed up to determine nutritional exposures and ill health outcomes.

There are also policies and program implications including any lessons from recent attempts at direct impact mitigation. The specific role of food was examined since adequate access to food is one of first signs of distress in HIV/AIDS impacted households. According to surveys, over 1.4 million are affected by HIV/AIDS. In 2003, KDHS results estimated 6.7% prevalence of people living with HIV/AIDS among 15-49 year olds. KAIS: 2007 estimated that 7.8 % of the same age group were infected (National AIDS and STI Control Programme, 2007).

In Kenya, distribution of HIV infections varies across the country. Nyanza has the highest prevalence rate at 15.3% , which is more than twice the estimate of national prevalence. Nairobi, Coast and Rift Valley provinces rate closely at 9.0%, 7.9% and 7% respectively. In Eastern 4.7% of the adult population is infected while the figure is at 3.8% in Central. North Eastern ranks lowest in prevalence at 1% (Ngare and Mutunga, 1999)

Mlolongo, Athi-River and Machakos County as a whole was an ideal study area for it is frequented by Highway tract drivers and is situated along the Nairobi - Mombasa Highway. This area also harbors the Athi-River Export Processing Zones and the Malili-Konza International Communication Technology Complex frequented by people traveling worldwide. Disease surveillance, preparedness and response in this area should also be of international standard to ensure that the area never becomes an epicenter. It is anticipated that as Laboratories' systems are standardized, there will be provision of services which are effective, efficient, accurate and equitable leading to part fulfillment of our vision 2030 and improved health.

Worldwide, as laboratory systems and standards are improved, there follows improved healthcare thus better trade opportunities as well as improved turnaround times and this will be a major output in this Nation and Internationally.

II. Material And Methods

Alternate Hypothesis

Concerted enforcement of Clients' Multiple HIV/AIDS management practices leads to their improved health outcomes It is therefore critical to determine the factors associated with improved health outcomes for HIV/AIDS clients attending Comprehensive Care Centers' in Machakos County in Kenya.

This requires the following;

- To determine the association between HIV/AIDS Clients' behavioral practices and their Health Outcomes.
- To determine clients' HIV/ AIDS management practices in Machakos County.
- To determine the association between micronutrients, diets consumed by HIV infected clients, their HIV management practices at household level and their Health outcomes.
- To establish the effect of public health interventional health education and communication of Laboratory results to HIV infected clients as well as personalized guidance on micronutrients intake.

Methodology

A three year cohort study was done after signed informed consent to HIV infected Clients attending Comprehensive Care Centers in Machakos County. Study participants were selected on willingness and first come basis. Study participants received Health talks on beneficial adherence to ARVs, food intake that allowed biodiversity of 13 plus food species, bio availability of micronutrients, essential vitamins and use of fortified foods, deep green leafy vegetables, fruits rich in Zinc, bananas, liver, cashew nuts alongside balanced diets and household food supply¹ This message was repeatedly given every morning during the daily health education

talks time at the clinic. Short structured questionnaires were administered to study participants after six months intervals and double blinded data saved in Epi Info software.

Study Site

Machakos County (MC) is a county Eastern Province, Kenya. Machakos is the capital with a population of 1.4M (Kenya Bureau of Statistics, 1998) and covers an area of 6,281.4 km. This study was done in Athi-River and Machakos though coded for confidentiality purpose.

Study Population

The populations in these areas were expected to have different backgrounds and social characteristics so that any bias/confounding factors would be minimized.

Machakos County though next to the City of Nairobi borders other Counties, i.e., Thika County to the northwest, Kitui County to the east, Kajiado County to the west, Makueni County to the south, Maragwa County to the north and Mbeere County to the northeast. The people of Ukambani, of which Machakos is a part, are historically traders. Before the coming of the Europeans, their trade went as far as Lake Victoria, Lake Turkana, Mombasa and even further into Uganda, Congo and Central Africa. They loved the Mbalya dance whose fame grew to the level of entertaining National political gatherings especially under the direction of Kateng'e during the reign of Mzee Jommo Kenyatta. During such dances, the Kamba adult youths were allowed to choose their partners who would soon get married during another ceremony. The culture of trade and song continues to date.

The Kamba people traded in almost anything that could be sold but especially in jewellery, ivory, gemstones and sculpture, cattle, beads, cloth, guards, tobacco, honey as well as traditional herbal medicine just to name a few. Great leaders too have emanated from this community like the precolonial paramount chief Masaku of Ukambani, Paul Muindi who introduced gemstones mining in Kenya and Jonestone Mutiso Muthama. He migrated in search of a new faith but was the first man to load cattle into a lorry and using the ferry at Mombasa crossed the ocean and founded a settlement for them in the grasslands of Shimba Hills. This culture of trade and utilization of new opportunities continues thus exposing the community to much travel and interaction with strangers (some from High HIV Risk Groups) as well as challenges of having to lodge far from home. Other Kamba persons were warriors just to cite a few, stayed many years away from home providing security for this nation. HIV/AIDS epicenters should be kept as far from international cities and travel as possible to prevent worldwide disasters and epidemics. The Export Processing Zone is located in this county as well as the proposed international city to be built at Malili-Konza area, Macha city as well as Cyton cities.

As world economies undergo different types of shake-ups, Health Researchers in this country need to contribute to the diversification of Health resource base of the economy through trade promotion and investment. A special emphasis should be made on increased production and export of Health Services. Thus leading to job and wealth creation, poverty reduction and ensuring enhanced Health service delivery in a manner that stimulates the growth of the domestic economy for self-reliance and export and its integration into the global market taking full advantage of globalization. This is a long term endeavor for this community and thus the need to undertake this study in the selected region.

Health facilities Machakos and Athi-Rivr were thus an ideal area for this study frequented by Highway track drivers or is situated along the Kisumu- Nairobi- Mombasa Highway.
Human participant's eligibility (inclusion/exclusion)

Inclusion Criteria

Any adult person from Machakos County attending or visiting the selected Comprehensive Care Centers, living with or without HIV and consented to join the study was part of the study population. This was preferred due to clients' ability to respond to the interviewers, and it gives a wide coverage of people from various backgrounds and practices as well as at different stages of disease infection cycle. The opposite held true for exclusion.

Exclusion Criteria

Exclusion criteria was for all adult clients coming to the comprehensive care unit / section unwilling to participate in the project regardless of their HIV status or who are not willing to participate in the project regardless of their HIV status. Exclusion to the study may also have been due to randomization process on certain days when too many clients were in attendance and willing to participate. Access was dependent on their visits to the health facility according to the appointments given by the health provider. There were no incentives, but the health facility gave the necessary healthcare provision according to its normal routine procedures.

III. Result

After questionnaires were administered and data collected, collated and statistically analyzed, the following results were obtained:-TB (17.80%), Respiratory tract infections (41.50%), Stomach upsets and Diarrhea within Nutrition level of 13+ (34.40%) had fewer cases. Stress was prevalent at (71.10%) for within Nutrition 9 species and below. while Nutrition level of 13 + species (33.30%) had fewer stress issues. Multivitamins were used by (13.10%) those with and AIDS had (3.80%) and 1 Participant (0.77%) respectively. Proper use of safe food and water lessened secondary infections leading to a 45% improvement in healthcare. Only 3 people earned above fifty thousand Kenya Shillings (50,000/-) and could easily afford the recommended diet while the rest lived below the poverty line.

IV. Discussion

Mitigating micronutrients deficiency risk factors for those who adhered to 13 plus biodiversity of foods intake led to sufficient supply of essential vitamins A, D,E,K,C and others like B Complex especially Biotin and folic Acid2 .The utilization of micronutrients is as explained below. Magnesium required for annealing step during complementary binding and replication of DNA strands and healing of wounds. Zinc and Copper, are useful for boosting immunity though zinc requires ionophores for intracellular gating. Selenium is useful for nervous transmission, Iron for hemoglobin synthesis,, Calcium for strong bones formation while, Sodium and Potassium are all critical for Biochemical reactions in the body as well as energy production in the sodium potassium Pump for ATP,ADP, AMP and Energy release reversible reactions. The HIV infected persons' body requires sufficient nutrients for the Catabolism and Anabolism processes to occur. 13 plus Biodiversity and gives balance for the healthy state of the body to be restored thus wellness when the viral replication and destruction is superseded by the replication of T lymphocytes which destroy the virus with assistance of ARVs when the patient adheres to recommended regimens.

V. Conclusion

A therapeutic procedure consisting of drugs, food, safe water and micronutrients' availability dependent on biodiversity, as well as spiritual and epidemiological interplay for wellness was developed. This therapy over emphasized on mitigating ion deficiency risk factors through health education for beneficial information dissemination to HIV infected patients as well as optimized uptake of bio diverse food species 13+ as well as multivitamins and fortified foods alongside balanced diets. Enforced by multidisciplinary clinicians expertise in healthcare was manifested. Further research is still required.

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