

# HIV/ AIDS AMONG ADOLESCENTS: THE NEED FOR GOOD NUTRITION

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## **Abstract**

This paper examined the incidence of HIV among adolescents and the need for good nutrition since one of the problems of this age group is feeding disorder. The paper revealed that HIV is the main virus responsible for AIDS. The importance of the micro nutrients (vitamins and mineral salts) were highlighted in fortifying the deteriorated immune system. The paper concluded thus: nutrition care and support is critically important since it has the potential to prolong life, when there is early intervention in the course of the disease.

## **Introduction**

The human immune deficiency virus (HIV) is an infectious viral particle that is too small to be seen with the naked eyes. A virus such as HIV is 110.000 of a millimeter in diameter and can only be seen with an electron microscope, HIV belongs to an unusual class of viruses called retroviruses where the genetic material is in the form of Ribo Oxy Nucleic Acid (RNA). Unlike bacteria, this virus cannot reproduce themselves outside of a living cell. Hence, when they infect a person, they enter the cells of the host (Hublcy, 1993 in Salami 2000).

HIV can dwell in the body for as long as ten years or more (WHO, 1998). The extent to which a carrie can accommodate HIV before manifesting AIDS (Acquired Immune Deficiency syndrome) depends on, a number of factors: environment, body composition, way of life, nutrition among others (Ijezie, 1998).

According to world Health Organization report (WHO, 1998) AIDS was first recognized in 1981, among homosexuals in the United States of America. In Africa, the first was in a 13year Old girl . AIDS, transcends all boundaries regardless of age, sex, race, colour, religion or social status. It has affected every country in the world and very age group which include adolescents. Summary report of research findings by woman's health action research centre (WHARC, 2004), has it that: there is a high rate of sexually transmitted diseases (STDS) among Nigeria adolescents. And it is conceivable that the lack of proper treatment of STDS is one of the factors that maintain the high rate-of infection among adolesent and contribute to high HIV transmission in the country and especially in the rural areas.

The global magnitude of the epidemic according to Awake (1998) of December 2002, indicated that 42 million people, are living with HIV/AIDS of this, 38.8 million are adolescents, 29.2, million are adults and 3.2 million are children under I5years the total AIDS death is 21.8 million. From the above report HIV/AIDS in Nigeria is serious and will continue to increase if nothing is done to arrest the situation. It is present in all states of the federation, with increasing number among adolescents because of their active sex life.

## **How HIV Destroys Our Body and Causes AIDS**

Naturally, the body has in-built mechanism in the blood circulatory and lymphatic systems that fight germs, viral and bacterial attacks. The air, water, food we take in and the earth on which we walk contain invisible (Microscope) organisms that may be injurious to our systems.

However, these harmful organisms that we take unconsciously do not harm us. Our system atteck, fight and neutralize (Kill) them as soon as they find their way into our bodies. This is what we call natural body resistance to diseases. In the case of HIV infection the body mechanism actually tries to fight its presence but sooner or later, the HIV virus, will overpower that engine that fights disease and foreign substances in the body.

Schofield, (1997), said that HIV virus affects the Cd4 cells, the Tcells and reduces their number, thereby, weakening the body immunity to harmful foreign organisms. The implication of this is that any of the harmful microscopic organisms will flourish in the body once HIV virus overpowers., the system. This means that the body has Acquired the Immune Deficiency Syndrome (AIDS). This syndrome is just the manifestation of any opportunistic disease thriving on body immune deficiency status. One who is immune-deficient thus, becomes susceptible to a number of destructive diseases that may unfortunately come one's way. Therefore, AIDS does not refer to a particular disease per-se. the term describes HIV- indicative or AIDS-defining illnesses.

## **Symptoms of HIV/AIDS**

An Aids patient can manifest any or all of the illnesses depicted below as highted by Hubley (1993);

- Diarrhea that does not respond to treatment.

- Weight loss.
- Persistent fever (that does not respond to treatment).
- Swollen glands with boil in the ear, neck and regions and armpits.
- Tuberculosis.
- General weaknesses, loss of energy and agility.
- Skin infections like rashes, blisters and so on.
- Excessive sweating especially at night.
- While sports in the mouth.

### **Spreading HIV/AIDS**

HIV has been found in almost all body fluids, but the principal vehicles of HIV infection are the blood, serum, vaginal secretion, cervical secretion and breast milk of an infected person. However, saliva, tears, sweat, ammonic fluid, cerebro-spinal fluid, bone marrow, urine, faeces, gingival fluid and sputum may be considered infective too with proven otherwise (Ijezie, 1998).

As reported by society of women for AIDS in African, Nigeria (SWAAN, 2000), AIDS is spread or contracted in three major ways:

1. sexual intercourse.
2. Through mother to a child or foetus.
3. Through blood transfusion or exchange.
4. Though the use of sharp instruments like razor, needle.

The most popular mode of transmitting HIV is through sex. Hence the hues and cries about AIDS, most adolescents are engaging in indiscriminate sex especially in the rural-set ups where people do not believe that there is AIDS, no wonder the rapid increase in our environments.

### **Diagnosis and Treatment**

AIDS is diagnosed by a blood test. Although! there is no cure, the symptoms and illnesses related to AIDS can be treated.

### **Prevention of HIV/AIDS**

As Schofield (1997), puts it,

- Never share needles of any kind.
- Avoid contact with blood or wounds.
- If sexually active, now your partner's past sexual and drug experiences and if he or she has been tested for HIV.
- Always use latex condom every time you have sex.
- Remember even when used correctly, condoms are not 100% safe.
- Abstinence is the best.
- It is also advisable for people to have their own barbing clips. Razors and other sharp instruments but if but to be shared must be well sterilized.

### **Who is the Adolescent**

World Health Organization (WHO) 1998, has defined adolescent as persons in the 10-19 years of age group. The period of adolescence represents a watershed in developmental life of a human being as he/she transits from childhood to adulthood. There are four major components of adolescents development, namely; physical, psychological, cognitive and neuralgic. The most organized process of adolescent is puberty development or sexual maturation since this follows a constant pattern in every individual irrespective of the chronological age.

Nigeria adolescents have problems which are related to growing up. Many of these problems are related to sexuality, feeding disorders and so on the big adolescent boy or girl may not be as mentally mature as his or her physical looks, hence the proness to make mistakes especially those related to sexuality (WHARC, 2004). The youths/adolescents therefore, often go through their adolescent's slage of life, whether at school or a trade apprentice with total ignorance of sexuality education including contraception. The cultural setting in Nigeria is such that discussion about sex is considered to be an exclusive preserve of the adult. The adolescents are discouraged from talking about sex especially in the rural parts of the country. There is also little published information available to educate them on this matter, unlike in the developed countries.

UNESCO publication, 2000) reported that; by 36 years of age 55% of Nigeria girls have had sexual

intercourse and 80% of sexually exposed single woman aged 15-19 years used no contraception the same journal also purported that unprotected sexual intercourse is common and is as high as 79%. The repercussions of unprotected sexual intercourse are many, apart from an unwanted pregnancy, which can occur, sexually transmitted infections (STI) including Acquired Immune Deficiency Syndrome (AIDS) can also occur.

### **Nutrition for Immunity**

The time between HIV infection to AIDS varies within culture as well as between populations has been reported to be shortened in developing than industrialised countries even prior to the Anti retroviral era. (UNESCO, 2000). These differences in the rate of progression may be due to a number of factors, such as genetic and virological characteristics, concurrent infections, standards of healthcare, as well as micro nutrient intake and status (Awake, 1998). There is evidence from longitudinal studies that micro nutrients play a role in HIV disease progression. In the USA, HIV infected men with high intakes of Vitamin A, thiamin, riboflavin, niacin B6 and possibly C has less disease progression and mortality (Lawrence and Jackson, 2001).

Much is being done today in Nigeria, to care for HIV/AIDS patients and to educate people including adolescents about the dangers of AIDS, however, HIV is still spreading rapidly in most parts of the country. Life prolonging treatment on drugs is too expensive for most HIV-Infected people, although there is a significant scope for major cut now in the prices of drugs. Yet good nutrition may be the only form of therapy that is available to most adolescents. It is generally affordable because unrefined and unprocessed foods tend to be cheaper and healthier.

All classes of food are essential in the maintenance and restoration of life. These include protein, carbohydrate, fats and oil, vitamins and mineral matters but for the purpose of this paper the vitamins and mineral matters will be focused on since both nutrients function, is to protect the body against infections and diseases.

### **Vitamin A**

Vitamin A or retinal helps the body to resist a wide variety of pathogens. This according to Salami (2000), is partly due to its involvement in the production of mucopolysaccharide, a component of the mucous membranes. It is one of the most important protective nutrients against deadly diseases such as cancer.

### **Source of Vitamin A**

Green and yellow fruits and vegetables are important sources of vitamin A. Such as tomatoes, milk and milk products, sweet potatoes, carrots, beef, liver, oil and others. The supplement range is from 20,000 to 100,000 international units (iu) per day. According to dietary guide, one medium raw carrot-size contains about 10,000 (iu) per day. Vitamin A deficiency increases susceptibility to viral, bacterial and protozoa infections and makes these problems worse and more often fatal (Salami, 2000).

### **Vitamin B1, (Thiamin)**

According to Weiner (1989) in Salami (2000), vitamin B, is involved in appetite regulation, carbohydrate metabolism, blood building, production of hydrochloric acid for digestion, energy, growth, learning capacity and maintaining the tone of the heart and smooth muscles. Food that contains thiamin includes, pens, corn, water melon, sweet potatoes, yeast and yeast products, brown rice, fish, meat, poultry, nuts wheat germs and others.

Deficiency size, total number of T and B cells in the blood, spoken cell responses, primary immunoglobulin response, delayed skin sensitive and resistance to infection. The supplement range is from 50 milligrams to several grams. One cup of sunflower seeds contains about 2 milligrams of vitamin B1, (thiamin).

### **Vitamin B2 (Riboflavin)**

Along with other B complex vitamins, riboflavin is involved in maintaining the mucosal barriers that help to defend the body against infection. Riboflavin is an immunity promoter and is involved in the production of antibodies. Other important functions of riboflavin includes formation of red blood cell, cell respiration and metabolism of carbohydrates, fat and proteins (Weiner, 1989). Foods that contain riboflavin includes milk, powdered whey, cheese, liver kidney, heart, eggs, green leafy

vegetables green pepper, nuts and others.

### **Vitamin B6 (Pyridoxine)**

Pyridoxine is one of the most important vitamins for proper immune functioning. It appears to be key factor in protecting against atherosclerosis and heart diseases. Foods containing vitamin B6 (Pyridoxine) include bananas, avocados, lettuce, carrots, tomatoes, onions, apples, sweet potatoes, green leafy vegetables, meat, meat organs, wheat grain soya beans, peanuts and others. The supplement range is from 50-20 milligrams one cup of peanut contains about 2 milligrams of pyridoxine (Rosenbaum, 1994). With pyridoxine deficiency, there is impairment of T-cell mediated immunity.

### **Vitamin B12 (Cyanocobalamin)**

This is the only known cobalt containing substance essential to life. It is essential for maturation of red blood cells in bone marrow, transfer of single carbon units and metabolism of nervous tissue (Weiner, 1989).

Food containing vitamin B12 are liver, kidney, milk, eggs, cheese, bone marrow. The supplement range is from 50-100 micro grams. According to Wiener, one quarter pound beef liver contains about 90 micrograms of cobalamin. Deficiency disease of cobalamin are anemia, retard growth and inability to kill bacteria.

### **Folic Acid**

Folic acid is an immunity-enhancing member of the vitamin B complex, with deficiencies leading to suppression of both cellular and humoral immunity. Foods contain folic acid include green leafy vegetables, milk, meat organs, whole grains, yeast and yeast products.

### **Vitamin C (Ascorbic Acid)**

Vitamin C has influence on the ability of phagocytes to kill bacteria, fungi and improves the body immunity against viral infections. Vitamin C is an antioxidant, it protects against lipid peroxidation, preventing the formation of dangerous free radicals. Vitamin C is present in the following foods, green peppers, oranges, cabbage, grape fruit, milk and vegetables.

### **Vitamin D**

Vitamin D is the only vitamin that we can manufacture ourselves by exposing our body to ultra violet rays of the sun. It is discovered that vitamin D has immunosuppressive effects and plays a key role in forming bone through its regulation of calcium and phosphorus metabolism. Vitamin D along with calcium help to prevent the bone from degenerating effects of corticosteroids in HIV" victim (WHARC, 2004). Natural sources of vitamin D beside sun light include, cod liver oil, margarine, fish, meat, organs, bone meal, egg yolk and milk.

### **Vitamin E**

Vitamin E is recently seen as a "miracle vitamin". It is best known for its antioxidant properties and its ability to stimulate the immune system and to protect against infection. It protects stress in general and increases fertility in animals. It is found in dark green vegetables, eggs, liver, meat offal's wheat germ, oat meal, peanuts and tomatoes. Deficiency in vitamin E results in decreased lymphatic organ size, B and T cell proliferation, white blood cell function, inflammatory response and host resistance to infection.

### **Minerals**

**Copper:** -Copper is involved in body healing process, bone formation, hair and skin colour, red blood cell and hemoglobin formation: The supplement range is from 2-5mg. One cup of soya beans contains 2gm of copper.

**iron:** iron is one of the most likely single nutrient to be deficient in the absence of any other form of malnutrition (Beisel, 1982), Iron can be present in foods such as eggs, fish meat offals, poultry, wheat germ, liver, pumpkin leaves, cocoa, unripe plantain. Iron deficiency is common among malnourished children. Iron deficiency impairs the ability of phagocytes to kill bacteria, thus, impairing resistance to infection.

**Magnesium:** Magnesium is important-in regulating many vital body functions. Magnesium nutrient is

involved in the body's acid/alkaline balance and in the metabolism of blood sugar to produce energy. It also regulates the metabolism of calcium and vitamin C. Magnesium rich foods include honey, green vegetables, nuts, sea foods, spinach and bone meal. A deficiency of it causes the immune system to over reach, with over production of certain white cells that affect the body system (Rosenbaum, 1994).

**Zinc:** Zinc is an extremely important immune stimulant specifically promoting cells immunity. People suffering from severe protein energy malnutrition usually do not have adequate intake of zinc and this results in severe depression of cell-mediated immunity and infections (Rosenbaum, 1994). Zinc rich foods include brewer's yeast, liver, sea foods, soybeans, spinach and mushrooms.

### **Recommendation**

- There is the need for sex education to be taught in schools and at home to enlighten the adolescents about the dangers of sex.
  - The adolescents need to know that there is HIV/AIDS, that it cuts across the age groups, the dangers and how it can be prevented.
  - The adolescents need to have nutrition knowledge and be encouraged to eat nutritious meals and not junks. This can be taught in schools, television, radio and through seminars.
  - Government should support adolescents with HIV/AIDS with adequate foods and drug supplies.
- » Parents should ensure that their children are given adequate diets/ meals that will help them grow properly and enhance their immunity against diseases and infections. It is better to pay the cook than the Doctor".

### **Conclusion**

Good nutrition is particularly important in Nigeria where antiretroviral drugs are unaffordable to most of the adolescents suffering from HIV/AIDS. Nutrition care and support is critically important in preventing nutritional depletion. Nutrition support has the potential to prolong life, an impact which will be greatest if interventions take place early in the course of the disease.

There is the need for improved quantity of the diet to build or replenish body stores of micro-nutrients to speed recuperation from HIV related infections and to prepare for and manage AIDS related symptoms that affect food consumption and dietary intake.

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