



## Nutritional Profile of HIV Positive Women (Non–Anti Retroviral Therapy) in Coimbatore, Tamil Nadu

Chitra J\*, Booma N

Department of Food science and Nutrition, Avinashilingam Institute for Home Science and Higher Education for Women, Coimbatore.

\*Corresponding author's E-mail: [jchithu@gmail.com](mailto:jchithu@gmail.com)

Accepted on: 15-10-2013; Finalized on: 31-12-2013.

### ABSTRACT

HIV have posed various medical, nutritional, social and economic problems. Female-headed households are being the most affected and women have always been a vulnerable section of the society. Poor nutritional knowledge and dietary practices common among the most affected households significantly contribute to the rapid progression of HIV. However, very little data exist concerning these aspects of nutrition among women living with HIV in Coimbatore, Tamil Nadu. The aim of the study was to investigate the nutritional knowledge, attitudes, dietary practices, drug-food interaction and their relationship with sociodemographic characteristics in an urban population of women living with HIV in Coimbatore, Tamil Nadu. This cross sectional study recruited female patients on non antiretroviral therapy. The anthropometric measurement of Height, weight, Body Mass Index (BMI), Mid Upper Arm Circumferences (MUAC) and waist to hip ratio were measured. The BMI of most women (30%) was between 9.5-31.0 with a mean value of 19.4 The MUAC of the women (30 %) was between 15.5-30.0 cm with a mean value of 22.5cm Nutrient intake was calculated by 24 hour recall method and food frequency questionnaire. Dietary intake was inadequate, which affected the nutritional status. However, to understand the drug–food interaction, dietary diversification and enhance proper dietary practices through sustainable projects that ensures increase access to food.

**Keywords:** Cross sectional studies, Dietary practices, Drug-food interaction, Human Immunodeficiency Virus, Non antiretroviral therapy, Nutritional status.

### INTRODUCTION

The advent of HIV infection in India was first documented in Chennai in 1986 and from then until the end of 2007, 2.4 million Indians are currently living with HIV. Tamil Nadu topped the list of status most affected by HIV. The total number of HIV positive people in Tamil Nadu is about 105,671 and the prevalence rate is about 0.27%, the prevalence of HIV is 98.2% in urban areas and 94.4% in rural areas of Tamil Nadu.<sup>1</sup>

Nutrition plays a crucial role throughout the course of HIV disease. Once infected, malnutrition and HIV work in tandem, creating classic 'vicious cycle' where each condition degenerate the other. This deadly tandem, threatens the nutrition security of HIV positive individuals. People living with HIV and those with AIDS require more energy and more protein, along with the necessary micronutrients, than the people who are not HIV infection.<sup>2</sup>

Malnutrition has been one of the most common hallmarks of HIV disease for years. Addressing gaps in nutrition among People Living With HIV and AIDS (PLWHA) is essential because nutritional plays a vital role in the care and management of HIV as it is closely linked to immune function.<sup>3</sup> The report showed that HIV and AIDS have also posed various nutritional, clinical, social and economic problems national wide, female-headed households being the most affected. Research has shown that both macronutrients and micronutrients deficiencies contribute to immune dysfunction and can lead consumption of proper nutrients, which can be enhanced

by knowledge of importance of good nutrition for PLWHA and proper dietary practices, can support an already compromised immune system.<sup>4</sup>

During the acute stage of HIV infection the antiretroviral therapy is not necessary. The treatment should be started before the patients CD<sub>4</sub> count falls below 200 and most national guidelines say to start treatment once CD<sub>4</sub> counts falls below 350 and stage III or IV disease should be offered treatment.<sup>5</sup> The most effective treatment for HIV is Highly Active Anti Retroviral therapy (HAAR) a combination of several antiretroviral medicines that aims to control the amount of virus their body. Three antiviral drugs have been approved in the United States for the treatment of AIDS.<sup>6</sup> This study was therefore, undertaken to assess the status in nutritional knowledge, attitudes, dietary practices, Knowledge about drug-food interactions and socioeconomic status, Hence a report on effective ways to improve the nutritional management of HIV in this vulnerable group is assessed.

### MATERIALS AND METHODS

#### Study population and design

Data for this cross –sectional study were collected from 30 HIV positive women (Non-ART) in Coimbatore district, Tamil Nadu. The participants received counseling for HIV from the ART counseling Centre in Government Hospitals at Coimbatore. After an initial enquiry made by the investigator, a list was made comprising all eligible women living with HIV without taking ART treatment to develop a sampling frame. Random selection from the list

was then done to establish the sample size of 30 women for the study.

A specially designed interview schedule was used for collecting data in the homes of participants to obtain socio-economic status, health characteristics of the women and the house hold members, nutritional knowledge, attitudes and dietary practices.

### Nutritional status

The following questions were used for assessing the nutritional knowledge of the selected HIV positive women (Non-ART) such as a) Socio-economic status of the PLWHA b) Dietary patterns of the selected PLWHA c) Knowledge of the relationships between diet and disease d) The diets of HIV positive women were estimated through a 24 hour recall method e) Anthropometric measurement such as height, weight and body mass index (BMI), mid upper arm circumference (MUAC) and waist to hip ratio were recorded for all the 30 samples selected for the study.

### Nutritional attitude of the PLWHA

The participants were assessed for their attitudes towards nutritional recommendations for the PLWHA. These includes, a) Consumption of fruits and vegetables b) Eating special foods during illness c) Diet restriction d) Foods avoided due to taboos or superficial belief e) Increasing meal frequency.

### Food and nutrient intake

The following aspects of dietary consumption patterns were used for assessing the food and nutrient intake of the participants. Mean food intake of the selected women in the proceeding 24 hours recall were grouped in 9 food groups: Cereals, pulses, green leafy vegetables, roots and tubers, fruits, milk and milk products, sugar and jaggery, fats and oils.

The intake of food and nutrient was measured through 24 hour recall method for the selected thirty samples. Information on the total cooked amount of each preparation was noted in terms of standardized cups and the intake of each food item by the individual was calculated.

Mean nutrient intake of selected women in the proceeding 24 hour recall were grouped in 12 nutrient groups such as calorie, protein, fat, fibre, calcium, carbohydrates, iron, carotene, thiamin, riboflavin, niacin and vitamin C. The intake of macronutrients and micronutrients were computed using the value nutrients.<sup>7</sup>

## RESULTS

A total of thirty Human Immunodeficiency Virus (HIV) positive women were interviewed in Government Hospital in Anti Retroviral Therapy Centre at Coimbatore for data collection for demographic and socio-economic background by administering a schedule. The mean age of the women was above 20 to 25 years. Young women are more prone to HIV infection compare to older adult women. 70 per cent of the HIV infected women were

nuclear family another remaining 30 were widow and 80 per cent women were married. 40 per cent of the women were illiterate, 20 per cent were studied up to higher secondary level, 10 per cent were continued with high school level and 44 per cent women were unemployed (Table 1).

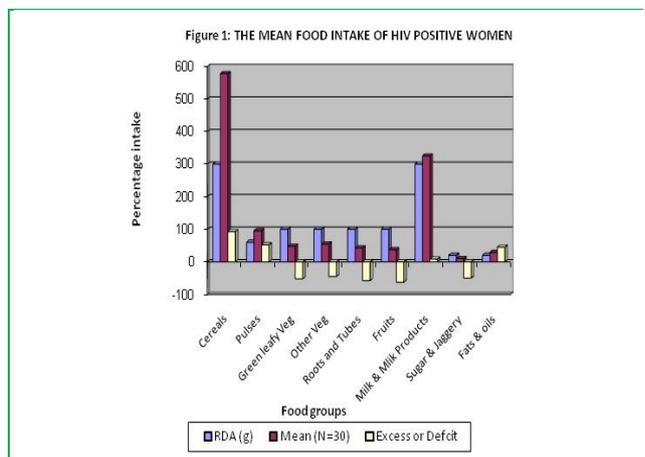
**Table 1:** Socio-economic characteristics of the HIV positive women (n=30)

Variable	No's	Percentage
<b>Age</b>		
20 - 25 year	12	40.00
26 - 30 years	7	23.30
31 – 35 years	6	20.00
Above 36 years	5	16.60
<b>Type of family</b>		
Nuclear	21	70.00
Joint	9	30.00
<b>Marital status</b>		
Married	24	80.00
Unmarried	6	20.00
<b>Religion</b>		
Hindu	24	70.00
Christian	5	16.60
Muslim	1	13.30
<b>Level of education</b>		
Illiterate	12	40.00
Primary school	9	30.00
High school	3	10.00
Higher secondary school	6	20.00
<b>Occupation</b>		
Labourer	7	23.30
Business	6	20.00
Office work	1	13.30
Unemployed	10	33.30
Others	6	20.00
<b>Monthly income</b>		
Less than 2500	13	43.30
2500 - 4500	10	33.30
4500 – 7500	3	10.00
Above 7500	1	3.30
Not earning	3	10.00
<b>Other sources of income</b>		
investments	1	3.30
Allowance from parents	11	36.60
Other earning	2	6.60
no income from others	16	53.30

**Nutritional status of HIV positive women**

In this study, 70 per cent women were non-vegetarian (NV) and 40 per cent of the women did not skipped meals. 30 per cent of the women reported brinjal, pumpkin, cluster beans and yam to be allergic and these foods were restricted in their diet. Fruits such as papaya, pine apple and jack fruits were considered to be highly abortive foods by 50 per cent of the selected HIV infected women.

Twenty four hour recall method revealed that the most of the women were included in their diet food groups – cereals 92.6 per cent, pulses 52 percent and 45 per cent of fat and oils. The mean deficit of food groups green leafy vegetables, roots and tubers and fruits were in the rage of -52.2 per cent, -45.2 per cent and -62.6 per cent. Food aid is mainly given to most vulnerable groups; the women were also noted as most likely to consume at least three meals daily. In the absence of food aid, the findings showed that the household were unable to ensure adequate dietary practices (Figure 1).

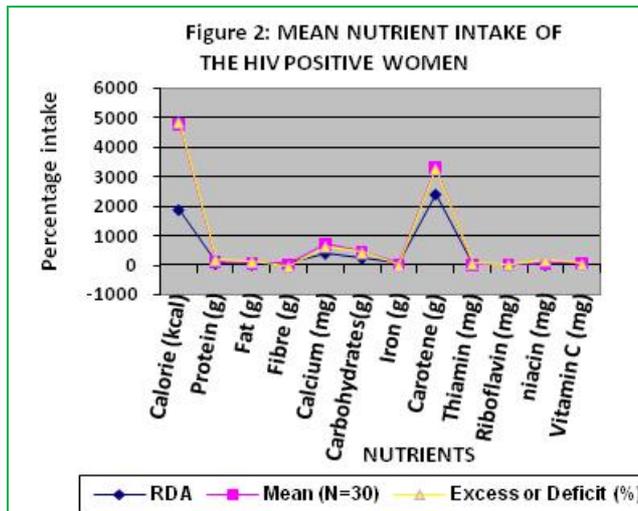


The height of the 30 HIV positive women were between 140-167 cm and average BMI of 19.4 ranging from 15.5-31.0 cm indicating that on an average most of them were having lower weights for their heights (Table -2).

**Table 2:** Anthropometric parameters of the HIV positive women

Parameters	Mean	Range
Height (cm)	162.0	140-167
Weight (kg)	48.4	30-70
Body Mass Index	19.4	15.5-31.0
Mid upper arm circumference (cm)	22.5	9.5-31.0
Waist / hip ratio	0.7	0.5-0.9

The intake of all nutrients except calorie, protein, fat, thiamin, riboflavin and niacin were found to be deficient among the selected HIV women. The mean deficit of -78.6 per cent of fibre, -78.6 per cent of calcium, -61.3 per cent of carotene and -56.3 per cent of iron in their diet (Figure 2).



**DISCUSSION**

The nutrient intake of the women was very poor. This is of concern since the requirement of such patients is 10 – 15 percent more than the normal RDA in case of energy and 1.5 to 2 gram kg<sup>-1</sup> day<sup>-1</sup> of ideal body weight in case of protein.<sup>8</sup>

Poor nutritional knowledge attitudes and diet practices therefore, play a key role in the rapid progression of HIV. However, very little date exist concerning these aspects of nutrition among women living with HIV in resource-limited setting in the Coimbatore. These aspects are also among the key factors that determine the quality of life among PLWHA. Accordingly, the large majority 86.60 per cent of the selected women neither had the knowledge on important aspects of the role of nutrition in the enhancing treatment efficiency nor the drug food interactions.

Drug therapy is capable of extending to some extent the life expectancy of patients with symptomatic disease. Three antiviral drugs have been approved in the United Status for the treatment of HIV. These are a *zidothymidine*, *dideoxycytidine* and *dideoxyinosine*, all three drugs are therefore very toxic and the benefits are only temporary.<sup>9</sup> 78.90 per cent of the women were reported to consume less food groups. The mean food intake of the women was inadequate, intake of green leafy vegetables, other vegetables, fruits, roots and tubers was found to be deficient. The nutrition knowledge and positive attitudes gained by the PLWHA should be followed up to ensure that they are transformed into good nutritional practices. Support groups of the PLWHA are good vehicle for implementing these recommended practices and nutrition interventions.

Knowledge about drug-food interactions, use of fruits and vegetables as protective foods, promoted in the study area. Food aid had a positive impact on dietary practices of beneficiary households. However to ensure sustainable impacts of HIV affected households, it should be delivered as part of an integrated package of food security and nutrition programmes. Biological, socio-



cultural and economic factors make women and young girls are more vulnerable to HIV. Anthropometry is the science of measuring the size, weight, height and proportion of the human body. These physical measurements are one of the components of nutritional assessment.<sup>8</sup>

Diet is a vital determinant of health and nutritional status of people. The dietary habits of individuals vary according to socio-economic factors, regional customs, traditions and disease conditions.<sup>10</sup>

### CONCLUSION

Human Immunodeficiency Virus (HIV) and Acquired Immune Deficiency Syndrome have also created nutritional, clinical, social and economic problems national wide. Improper nutrition has been one of the most common of HIV disease. Nutritional supplement and drug therapy with great soothing and controlling effect could act as an adjunct intervention remedy in ensuring the health of people living with HIV/AIDS.

**Acknowledgement:** This study was supported by departments of STD and ART centre at Coimbatore Government Hospital and all the participants who took part in the study.

### REFERENCES

1. NACO – National Aids Control Organization, The issue of control and prevention of HIV/AIDS, Annual report, New Delhi, 2007.
2. Fauzie WW, Spiegel man D, Msamang GI, A randomized trail of multivitamin supplements and HIV disease progression and mortality, New England, Journal of Medicine, 351, 2004, 23-32.
3. Tang AM, Weight loss, wasting and survival in HIV positive patients, current strategies, AIDS, 13, 2003, 23 – 27.
4. Walsh CM, Dannhauser A, Joubert G, Impact of a nutritional education programme on nutrition knowledge and dietary practices of lower socio-economic communities in the free state, SAJCN, 2003, 16, 89 – 95.
5. Allen CF, River K, Risk factors for HIV infection among Female sex workers in Guyana, Journal of AIDS, 43, 2006, 96.
6. National Association of People Living with HIV/AIDS (NAPLHA), AIDS info-U.S. Department of Health and Human services, 2008.
7. Gopalan C, Nutritive value of Indian food, Indian council of Medical Research, 2004, 47 – 49.
8. Mohan KL, Stump SW, Krau's Food, Nutrition and Diet Therapy, Saunders Company, 2<sup>nd</sup> Edition, 2004, 125-128.
9. Hilary J, Human Nutrition seventh Edition University of Shettfield Reader, 10, 2005, 2, 105.
10. Thimmayamma, Parvathi Rao, Dietary Assessment as part of Nutritional status, Text Book of Human Nutrition 2<sup>nd</sup> Edition, IBH publishing Pvt. Ltd New Delhi, 2004.

Source of Support: Nil, Conflict of Interest: None.

