Dual Nutrition Burden in Women

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Abstract—*"Too early, too close, too many and too late" pregnancies adversely affect nutrition and health status of the mother child dyad; timely contraceptive care has become an indirect effective intervention to prevent deterioration in maternal and child nutrition. Epidemiological studies from India documented the magnitude and adverse consequences of Chronic Energy Deficiency (CED) on the mother child dyad and paved way for intervention programmes to address under nutrition during pregnancy and lactation. Yet another important indirect cause of under nutrition continues to be infection s. under nutrition increases the susceptibility to infections; infections aggravate under nutrition. Over the last decade there will be increase in under nutrition in women is due to HIV infection. While under nutrition continues to be a major problem as in the earlier decades, the current decades has witnessed the progressive rise in over nutrition in women during reproductive age especially among the affluent segments of population both in urban and in rural areas and associated steep increases in the prevalence of non communicable diseases. In this an attempt had been made to find data on the factors responsible for emerging problem of dual burden of mal nutrition and associated health hazards in women.*

INTRODUCTION

Nutrition is one of the major environmental factors responsible for the maintenances of health and physical fitness.The importance's of health care of young women is of vital importance as they have to hold the responsibility of mother hood in their life. The state of nutrition of an individual depends to a great extent on quality and quantity of food that is consumed.

The results of the nutrition surveys reveals that the diets of women are mainly based on cereals and deficient in protective foods.The low intake of protective foods results in nutritional disorders.

In all states in India, under nutrition continues to be major problem in women;maternal under nutrition is associated with high low birth weight;LBW is associated with poor growth during infancy and child hood and high non communicable diseases in adult life. From time immemorial it has been recognized that women especially pregnant women and lactating mother form one of the most vulnerable segments of the population from the nutritional point of view.

Numerous studies in India and else where have shown that in chronically under nourished women subsisting on unchanged low dietary intake, pregnancy and lactation have an adverse effect on maternal nutrition status. Maternal under weight is associated with low birth weight and all its attendant adverse consequences.

However to take cognizance of the emerging problem of over nutrition in women, Indian women appear to have the predisposition for adiposity especially abdominal, insulin resistance and diabetes,hyper triglyceridaemia and cardiovascular diseases.It is essential that the dual nutrition and health burden is combated through efficient implementation of time tested, effective and in expensive interventions to achieve significant reduction in both over and under nutrition and their adverse health consequences.

Therefore, women must ingest the required amount of nutrients in the form of daily diet to achieve good nutriture as the improved nutriture has a strong and positive impact on productivity and for the health of new born. The objective of this study, therefore was to determine the nutrient intake, anthropometric measurements, clinical signs and symptoms of nutritional deficiencies and to assess biochemical parameters of rural women in Coimbatore.

MATERIALS AND METHODS

A sample of three hundred and twenty rural women of 20-35 years of age from village of Coimbatore were selected for the study. The weight, height and the information on the nutritional deficiency symptoms were recorded according to the standard procedure suggested by Jelliffe (1966). Body Mass Index (BMI) calculated by using the equation given by Garrow (1999).

The food consumption of the subjects was recorded by 24 hour recall method for three consecutive days. The cooked food dishes were converted into raw foods with the help of measuring katories. This helped in converting the cooked foods consumed by the subjects to equivalent of raw foods to facilitate calculation of nutrients in the diets. From the actual foods consumed daily by the subjects the energy, protein, iron, calcium, phosphorus and ascorbic acid were calculated by Gopalan et al (2001).

The blood samples of the subjects were analyzed for hemoglobin (HB) by cyanmethemoglobin method of Dacie and Lewis (!996)and packed cell volume by Hunter and Bomford (1997). The results were statistically analyzed and their test of significance was applied.

Results And Discussion

Anthopometry Measurements

The average weight and height of the subjects is given in Table 1.

Table 1: Athropometry Measurements of the Subjects

Parameters	Mean Value	Normal Value*
Weight(kg)	53.8± 0.7	50
Height(cm)	159± 0.4	156
BMI	21±0.3	20-25

The average weight of the subjects of 20-35 years ranged from 35-6 4 kg whereas the range in height was 125-165 cm among the subjects were found to be slightly more as compared to standard values of ICMR(1990) for healthy women.But it was almost normal when considered according to their weight for height.Mehta and Dodd (2003) also observed higher figures for weight among adult women.

A range of 15- 38 in Body Mass Index (BMI) was found among the subjects.The mean values of BMI among the subjects was 21 which falls in the normal range of 20-25 as given by Garrow (1999).

NIN (2002) reported the mean BMI of 19.6 for women 20-40 years which was quite close to the average BMI obtained in the present study. The greater values for all the observations reveal the impact of agriculture and dairy resources on the nutritional status of women.

Nurtient Intake

The average daily intake of nutrients by the subjects is presented in Table 2

Table 2: Mean Daily Nutrient Intake of the Subjects

Nutrients	Mean Value	RDA*
Energy (Kcal)	2237 ± 30.9	2356
Proteins (g)	68 ± 1.0	55
Iron(mg)	26± 1.6	30
Calcium(mg)	909 ±36.9	400
Phosphorus (mg)	217± 33.7	400
Ascorbic acid (mg)	24± 7.8	40

*Recommended Dietary Allowances (ICMR, 1990)

It was observed that the mean daily energy and protein intake by the subjects was adequate as compared to Recommended Dietary Allowances (ICMR, 1990).

On the contrary energy in adequacy in the diets of women was reported by Chadha et al (1998).the percent contribution of carbohydrates, proteins and fat to total energy intake was found to be 57 percent,12 percent and 31 percent respectively which was almost adequate as compared to ICMR recommendation.

The mean daily iron intake among the subjects was 26mg which 87 percent of the RDA. The low iron intake was attributed to insufficient intake of green leafy vegetables.A range of 788 mg in calcium was found among the subjects. The mean daily intake of calcium and phosphorus by the subjects exceeded the recommended allowances.

The average daily intake of ascorbic acid ranged from 10- 26mg among all the subjects. A low intake of ascorbic acid among women of low income group.

Clinical Symptoms

Clinical symptoms of anemia such as paleness of conjunctiva and skin pale, flat nails and fatigue etc were observed among the subjects is shown in table 3.

Table 3: Clinical Symptoms of Nutritional Deficiencies Among the Selected Subjects

Symptoms	No. Of Subjects (N=320)	Percent (%)
Pale conjunctiva	4	1.25
Paleness of the skin	13	4.06
Pale and smooth tongue	10	3.2
Flat nails	8	2.5
Fatigue	16	5.0
Mottled enamel	12	3.75
Carries	20	6.25
Pigmented skin	8	2.5

The common deficiency signs of B complex vitamins and anemia was observed among the subjects. the present study line with (.Rao et al., 2000).

Biochemical Profile

Hematological picture of the subjects is projected in table 4

Table 4: Hematological Picture of the Subjects

Blood Parameters	Normal Values*	Mean ± S.E
Hemoglobin (g/dl)	12	10.6 ± 0.1
Packed Cell Volume(%)	32-38	37.8 ± 0.3
Mean Corpuscular Hemoglobin Concentration (%)	32-38	28.0 ± 0.2

The blood hemoglobin (Hb) level, packed cell volume (PCV) and mean corpuscular hemoglobin concentration (MCHC) values ranged from 8-13g/dl, 29-45 percent and 23-38 percent respectively.The mean Hb value of 10.6g/dl and of MCHC (28 %) were below the normal limit confirming iron deficiency anemia.However the average value of PCV (37.8%) was noted among the subjects.

Conclusion

The present study revealed that the body weights and heights of the subjects were within the normal range. The clinical signs of anemia were observed in the subjects. The dietary inadequacy of iron seems to be the main causative factors of anemia. Therefore the intake of iron should be increased to improve the nutritional profile of women. It is essential that the dual nutrition and health burden is combated through efficient and inexpensive intervention to achieve significant reduction in under nutrition and their adverse health consequences.

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