

Research Paper :

## Assessment of nutritional status of selected families in adopted villages of Parbhani district

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### ABSTRACT

Nutritional status of 150 families selected from five adopted villages was assessed by collecting general information, diet survey and anthropometric measurements. The consumption pattern of the family and per capita consumption of various foods along with mean nutrient intake was calculated. The main source of income was agriculture. The maximum amount of money was spent on groceries and minimum amount of money was spent on fruits and vegetables. In case of food stuffs, average daily intake of wheat was highest among cereals and red gram dhal among pulses. Intake of protein, fat, energy, carbohydrates, calcium and iron was less than the recommended dietary allowances. Majority of the (54.72 per cent) adult women found to have normal BMI (18.5-25.0). Majority of deficiency symptoms observed among family members of selected villages were bitot spots, night blindness, angular stomatitis, chelosis, tongue red and raw, spongy bleeding gums and teeth caries.

**Key words :** Cereals, Pulses, Diet, Family, Nutritional status

Woman plays an important role at home, in society as well as in national development. She is central figure for well being of the entire family. In present era, women are performing dual responsibilities as bread winner and housekeeper. However, changed social status of women resulted additional workload but, less bothered about nutritional requirement. The negligence of women in India, under the influence of prevailing customs and tradition further accentuates the prevalence of maladies of malnutrition. Nutritional status and physical activity are affected by various socioeconomic factors including income, family size, occupation and educational status of the people. Physical growth of adolescent girl is totally dependent on adequacy of diet in terms of quality and quantity, but undernourished girls at adolescent age leads to malnourished mother in later age. Although many factors influence health and nutritional status, nutrient intake has tended to occupy the centre stage as the principal one. Several studies from different parts of the world reported that inadequate food, poverty, ignorance, illiteracy are the major causative factors of malnutrition. Nutritional anthropometry is one of the most important methods of assessment of growth and development. Several researchers studied the nutritional status of women, adolescent girls, pre-school and school going children, but the information on nutritional status of whole family including food and nutrient intake per ACU, per cent adequacy and anthropometric measures etc. together is not available more. Hence, present investigation was taken up to assess the nutritional status of selected families

in adopted villages of Parbhani district.

### METHODOLOGY

Five villages from Parbhani district namely, Nandkheda, Bramhangaon, Taroda, Singapur and Erendeshwar were adopted. Thirty families from each village were surveyed to elicit the information regarding family income, monthly expenditure on various food items, consumption pattern of the family and per capita consumption of various foods. The mean nutrient intake of families was also calculated by using one day recall method. Per cent adequacy of nutrient consumption of families (ACU/day) was compared with RDA and calculated. The anthropometric measurements *i.e.* height and weight were measured for adult women including pregnant women and lactating mothers and body mass index was calculated. The selected women were categorized as underweight, normal and over weight based on BMI. IEC programme was carried out by giving training, talks and demonstration on various nutrition based topics.

### FINDINGS AND DISCUSSION

The data regarding income of the surveyed families are presented in Table 1. Main source of the income of majority of families was agriculture (Rs.1,19,006/-) followed by other sources (Rs.21,409 /-) and dairy (Rs. 4639/-). The highest amount of money was spent on groceries and minimum money was spent on fruits and vegetables. Money spent on groceries ranged from Rs.

**Table 1 : Economic status of the selected families**

Sr. No.	Description	Range	Mean
Source of income (Rs./year)			
1.	Agriculture	15,000-1,00,000	1,19,006
2.	Dairy	1,000-50,000	4639
3.	Other sources	10,000-1,00,000	21,409
Monthly expenditure			
4.	Milk	30-1000	167
5.	Vegetables	50-1500	162
6.	Fruits	50-1500	122
7.	Groceries	300-15000	801
8.	Other	25-1000	60

300 - 15000/- with mean value of Rs. 801/-. Average monthly expenditure on milk, vegetables and fruit was Rs. 167/-, Rs.162/-and Rs.122/-, respectively.

Per capita consumption of various foods per ACU (Table 2) revealed that average daily intake of wheat was highest (192g) per family as compared to jowar (153g) and rice(18g). Among the pulses, red gram dal consumed by per ACU was 12 g while consumption of green gram dhal and bengal gram was 6 g and 2.5 g, respectively. The intake of milk was 48ml per ACU while oil consumption was 6.55g per ACU. The per day intake of sugar was 12 g per ACU. The leafy vegetables, roots and other vegetables were consumed 6.0, 5.8 g and 31 g per ACU, respectively (Table 2).

**Table 2 : Mean values per capita consumption of various foods by selected families(n=150)**

Item	Per family	Per ACU
Cereal		
Wheat	1217	192
Rice	114	18
Jowar	940	153
Pulses		
Red gram dal	78	12
Green gram dal	33	6
Bengal gram dal	15	2.5
Milk and milk products		
Milk	298	48
Curd	4	0.65
Oil	40.60	6.55
Vegetables		
Leafy	41.33	6.0
Roots	37.30	5.8
Other	194	31
Sugar/ jaggary	73.6	12

The nutrient intake of the families per adult consumption unit is shown in Table 3. It was inferred from the data that mean intake of protein, fat, carbohydrate

and energy per adult consumption unit was 47.90+ 11.15g, 16.09 + 4.39 g, 294.71 + 89.77 g, 1527.13 + 419.80 Kcal by selected families, respectively. The mean calcium and iron intake per adult consumption unit by families was 252.67 + 113.51 mg and 17.74 + 5.56 mg, respectively.

Per cent adequacy of nutrient consumption of families per ACU / day in comparison with RDA is given in Table 4. It was noticed from results that consumption of protein (80.05 %), with the range of 42.77 to 120.71 % ,fat (96.07 %) with the range of 34.50 to 486.75 %, energy (66.39 %) with the range of 33.70 to 123.89 % and calcium (66.33 %) with the range of 25.96 to 212.81 %, iron (65.53 %) with the range of 31.81 to 112.21 % while intake of carbohydrate (98.55%) with the range of 24.75 to 112.1 %, respectively.

Table 5 shows data regarding anthropometric measures of women from the surveyed families. There were 201 adult women, 5 pregnant women and 29 lactating women in the surveyed families. Data revealed that mean weight, height and BMI of adult women were 46.09 + 7.35 kg, 153.11 + 7.95 cm and 19.62 + 3.55, respectively. Only five pregnant women were observed among selected families and their mean weight and height were 50.66 + 7.0 kg and 154.16 + 6.08 cm, respectively. The corresponding figures for weight and height were 41.08 + 4.35 kg, 152.05 + 4.51 cm for lactating women.

Classification of women of five villages by BMI is presented in Table 6. Data indicated that majority of adult women (54.72 %) found to have normal BMI (18.5 – 25.0) followed by adult women having BMI less than 18.5 (42.21 %) and BMI more than 25 (3.51 %).

Table 7 reveals the data regarding deficiency symptoms observed among adult women, children and adolescent girls of selected families. It is inferred from Table 7 that majority of deficiency symptoms observed among family members of selected villages were bitot spots, night blindness, angular stomatitis, cheilosis, tongue red and raw, spongy bleeding gums and teeth caries and teeth mottled enamel. Deficiency symptoms such as bitot spots (4.21%), night blindness (5.78%), angular stomatitis, chelosis, tongue red and raw, tongue papillae (0.00%), gums spongy bleeding (6.31%) and teeth caries (3.15%) were observed in adult women. The percentages of pre-school children having signs and symptoms of PEM like hair sparse, hair discolored and hair easily plucked were 10.69 per cent. Deficiency symptoms like teeth caries (15.45%), tongue red and raw (13.4 %), night blindness (8.24%), mottled teeth enamel and spongy bleeding gums (6.18 %), cheilosis and bitot spots (5.15 %) and angular stomatitis (3.09%) were more prevalent among school going children. Adolescent girls were

**Table 3 : Mean nutrient intake of the selected families per ACU**

Particulars	Protein (g)	Fat (g)	CHO (g)	Energy ( Kcal)	Calcium (mg)	Iron (mg)
Range	28.28-87.56	8.30-30.30	122-486	903-2633	111-696	6.8-30.0
Mean	47.90	16.09	294.7	1527	252.6	17.74
SD	11.15	4.39	89.77	419.8	113.5	5.56

**Table 4 : Per cent adequacy of nutrient intake of the selected families per ACU**

Particulars	Protein (g)	Fat (g)	CHO (g)	Energy (Kcal)	Calcium (mg)	Iron (mg)
Range	42.77-120.71	34.5-486.75	24.75-112.1	33.7-123.89	25.96-212.81	31.81-112.21
Mean	80.05	96.07	98.55	66.39	66.33	65.53
SD	18.78	57.23	43.98	19.05	31.40	21.28

**Table 5 : Mean anthropometric measurements of women of the selected families**

Particulars	Adult women			Pregnant women			Lactating women		
	Weight (kg)	Height (cm)	BMI	Weight (kg)	Height (cm)	BMI	Weight (kg)	Height (cm)	BMI
Range	35 to 76	142 to 160	15.55 to 32.90	39 to 56	148 to 163	--	35 to 52	139 to 160	--
Mean	46.09	153.11	19.62	50.66	154.16	--	41.08	152.05	--
S.D.;	7.35	7.95	3.55	7.0	6.08	--	4.35	4.51	--

suffering from night blindness (2.50%), spongy bleeding gums (7.5 %), teeth caries and mottled teeth enamel (2.5 %), respectively. Maya (1986) revealed in her study that 56 to 60 per cent children of 6-9 years of age group were suffering with one or the problems of dental carries. The study was carried out in Parbhani district. The results of the same are in line with the present investigation.

**Table 6 : Classification of women on the basis of BMI**

Sr. No.	Classification	Adult women	
		Number	Per cent
1.	Less than 18.5	84	42.21
2.	18.5-25.0	108	54.27
3.	More than 25.0	7	3.51

### Conclusion:

Source of the income of majority of families was agriculture (Rs.1,19,006/-). Daily intake of wheat was highest (192g) per family as compared to jowar (153 g) and rice(18g). Among the pulses red gram dal consumed by per ACU was 12 g. mean intake of protein, fat, carbohydrate and energy per adult consumption unit was 47.90+ 11.15g, 16.09 + 4.39 g, 294.7 + 89.77 g, 1527 + 419.80 Kcal by selected families, respectively. The mean calcium and iron intake per adult consumption unit by families was 252.6 + 113.51 mg and 17.74 + 5.56 mg, respectively. Majority of adult women ( 54.27 %) found to have normal BMI (18.5 – 25.0). Majority of deficiency symptoms observed among family members of selected villages were bitot spots, night blindness, angular stomatitis,

**Table 7 : Prevalence of deficiency disorders among selected families**

Sr. No.	Deficiency disorders	Adult women		Pre school (1-6 yrs)		School going children (7-12yrs)		Adolescent girls (13-18 years)	
		No	%	No	%	No	%	No	%
1.	Bitot spots	8	4.21	2	3.57	5	5.15	0	0
2.	Night blindness	11	5.78	6	7.14	8	8.24	1	2.5
3.	Angular stomatitis	0	0	0	0	3	3.09	0	0
4.	Cheilosis	0	0	0	0	3	3.09	0	0
5.	Tongue red and raw	0	0	8	9.52	13	13.4	0	0
6.	Tongue papillae	0	0	0	0	2	2.06	0	0
7.	Gums spongy bleeding	12	6.31	10	11.9	6	6.18	3	7.5
8.	Teeth caries	6	3.15	15	17.85	15	15.46	1	2.5
9.	Teeth mottled enamel	0	0	6	7.14	6	6.18	1	2.5

chelosis, tongue red and raw, spongy bleeding gums and teeth caries and teeth mottled enamel.

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