

# Food and Nutritional Security of Human Population in Rural Areas of Jodhpur District

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## INTRODUCTION

Despite spectacular enhancement in agricultural production, malnutrition in human population remains a cause of serious and urgent concern. The situation of food and nutritional security is even more urgent in resource poor areas like deserts. Severe scarcity of rainfall leads to shortage of safe drinking water for humans and animals. Food and water scarcity ultimately leads to mass nutritional insecurity and morbidity, especially affecting vulnerable sections of society. Chronic under nutrition is responsible for terminating many lives apart from associated killing of lives due to drought and famine (Amartya Sen, 2002).

A study was conducted in Jodhpur district, which falls in the western sandy plain sub region of north western hot arid region. Jodhpur covers 11.6 percent of total area of arid zone of the Rajasthan state, temperature varies from 49 degrees in summer to 1 degree in winters, the average rainfall is 302 mm in a year, and soils are sandy and loamy. Bajra (Pearl millet) is the major crop in Kharif season and people habitually eat what they grow. Crop production is marginally successful therefore poverty is basically attributed to low production from marginal lands.

## METHODOLOGY

A survey of four villages was conducted in Jodhpur district by 24 hours dietary recall and nutritional anthropometry method on marginal, small and large male and female population numbering to 296 individuals. Four villages of Jodhpur district in two

panchayat samities namely Bhopalgarh and Shergarh were selected. In Bhopalgarh panchayat samiti, village Basni Kharia and Gajsinghpura were selected and in Shergarh panchayat samiti, Chaba and Tibna villages were selected. All the villages were 60-70 km away from urban area of the district. The families of village were classified into three economic classes based on land holding criteria. Marginal category farmers were considered in the low-income group having no or less than one ha unirrigated land.

The small category farmers were considered in the middle-income group having 1-2.5 ha unirrigated land. The large category farmers were considered in the high-income group having unirrigated land more than 2.5 ha (Sanadhya, 2001). From the each identified group in each village four households were selected based on snowball sampling method and all adult male and female with their all-family members were considered in the study. Dietary records and nutritional anthropometry *viz.* height and weight were recorded.

## RESULTS

The survey revealed that 11.1, 16.7 and 11.1 percent male adult population in marginal, small and large category were normal respectively. Similarly 12.2 percent marginal and small category and 6.1 percent large category adult females were normal when body mass index was calculated. Rest of the adult population had one or the other form of malnutrition (Table 1).

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**Table 1**  
Percentage prevalence of malnutrition in adult population based on BMI

BMI Class	Presumptive Diagnosis	Marginal		Small		Large	
		M	F	M	F	M	F
< 16.0	CED - grade III Severe	12.5	-	-	-	-	-
16.0-16.9	CED- grade II Moderate	-	18.8	12.5	-	-	-
17.0-18.4	CED-grade I Mild	25	12.5	25	25	-	11.8
18.5-19.9	Low weight-Normal	37.5	31.3	25	31.3	-	23.5
20.0-24.9	Normal	25	37.5	37.5	37.5	100	47
25.0-30.0	Obese- grade I	-	-	-	6.3	-	17.6
> 30.0	Obese-grade II	-	-	-	-	-	-

Dietary survey revealed that 1-6 yrs marginal, small and large category female children had energy intake 29 percent, 10 percent and 12 percent less than RDA, respectively. In 7-12 years female children marginal and small category had energy intake 10 percent and 7 percent less than RDA respectively. In 13-18 yrs female adolescents only marginal category had 4 percent less energy intake than RDA per day. In adult female only marginal category had 16 percent less energy intake than RDA per day (Table 2).

**Table 2**  
Mean energy intake and its adequacy as per RDA in female population

Age group (Years)	Category	Energy intake (Kcal)	Deficiency (Kcal)	Surplus (Kcal)
1-6	Marginal	1044.4	420.6	-
	Small	1323.4	141.6	-
	Large	1283.6	181.4	-
7-12	Marginal	1768.1	191.9	-
	Small	1824.3	135.7	-
	Large	2409.2	-	449.2
13-18	Marginal	1976.2	83.8	-
	Small	2235.5	-	175.5
	Large	3712.3	-	1652.3
Adult	Marginal	2461.7	463.3	-
	Small	2520.2	-	295.2
	Large	2977	-	1102

In male population the corresponding figures in 1-6 years marginal, small and large category are 10 percent, 10 percent and 12 percent respectively.

In 7-12 years only small category children had 21 percent energy intake less than RDA. Male adolescent population in 13-18 years had no deficiency of energy intake in marginal and small category while large category had only 1 percent less energy intake than RDA. In marginal and small category, adult male had 30 percent and 8 percent less energy intake than RDA (Table 3).

**Table 3**  
Mean energy intake and its adequacy as per RDA in male population

Age group (Years)	Category	Energy intake (Kcal)	Deficiency (Kcal)	Surplus (Kcal)
1-6	Marginal	1312.1	152.9	-
	Small	1339.1	125.9	-
	Large	1391.4	73.6	-
7-12	Marginal	2084.7	-	14.7
	Small	1641.2	428.8	-
	Large	2671.2	-	601.2
13-18	Marginal	2845.5	-	300.5
	Small	2723.4	-	178.4
	Large	2520.9	24.1	-
Adult	Marginal	2677	1123	-
	Small	2653.2	221.8	-
	Large	3423.5	-	998.5

In 1-6 year female, mean energy intake in marginal, small and large category was 1044.37 kcal, 1323.36 kcal and 1283.6 kcal respectively. In 7-12 year female, mean energy intake in marginal and small category was 1768.11 kcal and 1824.27 kcal

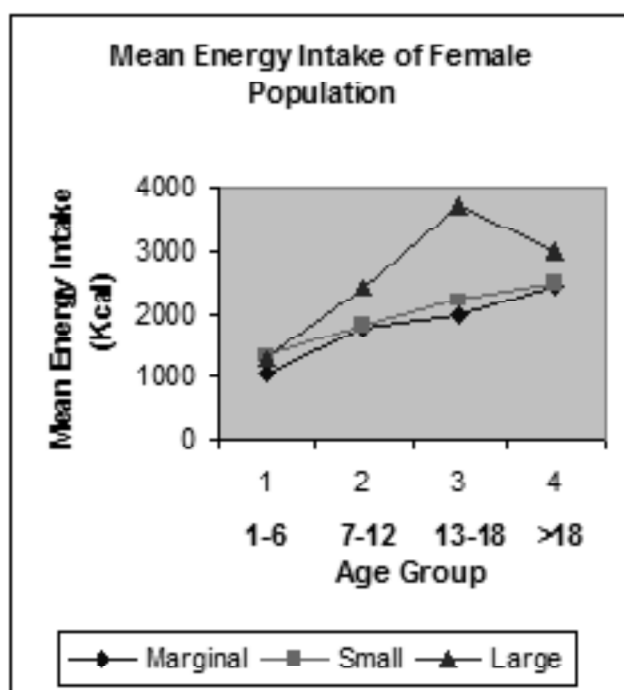


Figure 1(a)

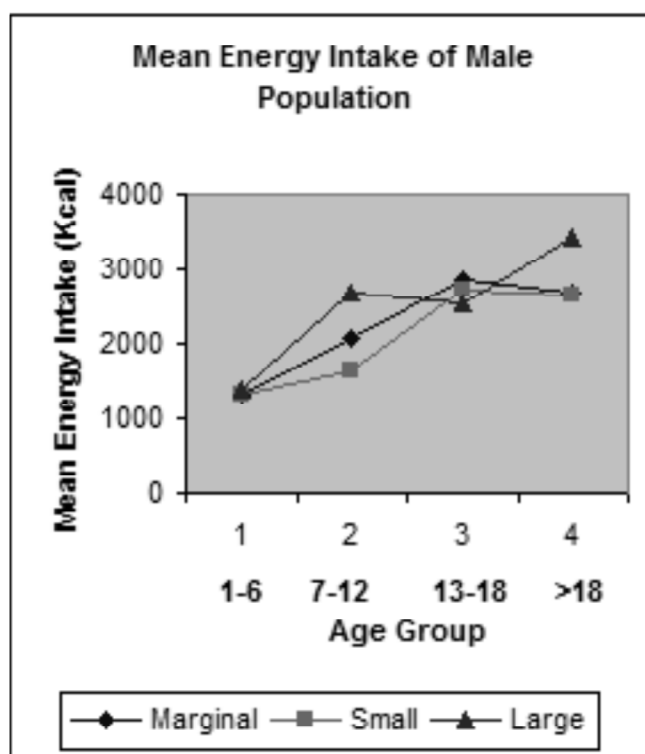


Figure 1(b)

respectively which increased to 2409.22 kcal in large category. In 13-18 year female, mean energy intake in marginal and small category was 1976 kcal and 2235.49 kcal respectively which increased to 3712.26 kcal in large category. In adult female, mean energy intake in marginal category was 2461.72 kcal, 2520.22 kcal in small category and 2976.96 kcal in large category [Figure 1(a)].

In 1-6 year male, mean energy intake in marginal, small and large category was 1312.08 kcal, 1339.11 kcal and 1391.36 kcal respectively. In 7-12 year male, mean energy intake in marginal and small category was 2084.73 kcal and 1641.17 kcal respectively which increased to 2671.18 kcal in large category. In 13-18 year male, mean energy intake in marginal and small category was 2845.48 kcal and 2723.42 kcal respectively which decreased to 2520.87 kcal in large category. In adult male, mean energy intake in marginal category was 2676.97 kcal, 2653.24 kcal in small category and 3423.52 kcal in large category [Figure 1(b)].

## CONCLUSION

District level cereal availability was found only 0.25 kg/day/person and pulses availability was 12.5gm/day/person (based on 2000-01 production data and 2001 population data). The study revealed that there is an urgent need to strategically enhance production in Jodhpur district so that food and nutritional security can be ensured equally for rural and urban population. Further enhancement in energy intake can be ensured through minimum employment, food for work programme and equal transportation of food material like pulses and vegetables to rural areas.

## References

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