

## AN EXPLORATORY STUDY OF DIET AND NUTRITIONAL STATUS OF SHARIYA TRIBE LACTATING WOMEN IN BARAN DISTRICT OF RAJASTHAN

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**Abstract:** The Saharia is reported to be one of the most backward tribes of Rajasthan. Recently media reported incidents of starvation deaths among Saharia tribal community in Kishanganj block of Baran district. Therefore, a rapid survey was carried out to assess the diet and nutritional status of Saharia tribal population. Total 120 samples were selected from Kishanganj and Shahbad panchayat samilti (60 from each block) in consultation with the district officials. The study revealed that a majority of the households surveyed were nuclear families. About 79.16% of the lactating women head of the households and 67.50% of their women counterparts were working. The major occupation of the head of the household was either agricultural labour or other labour (86.66%). In general at household level, the consumption of all the foods except cereals and millets were below the suggested levels. The intake of protein, calcium, iron, thiamin and niacin were comparable to the recommended allowances, while the intake of other nutrients such as total fat, energy, vitamin A, riboflavin, vitamin C and free folic acid were below the recommended levels. On clinical examination, the prevalence of Bitot spots among lactating women was found to be higher (06.66%) indicating that vitamin A deficiency is a major public health problem in the tribal population. The results revealed that mean height, weight and BMI of the subjects was lactating women (0-6 months) 154.03 cm, (6-12 months) 155.18 cm, and (0-6 months) 49.36 kg, (6-12 months) 52.08 kg lactating women and (0-6 months) 20.77 kg/m<sup>2</sup>, (6-12 months) 21.63kg/m<sup>2</sup>, respectively than that reported for the State of Rajasthan (48%) (DWCD, 1998). Breast-feeding practices revealed that majority of the mothers initiated breast-feeding on the third day of the delivery. The observations highlight the need for strengthening health and nutrition programmes in this area.

**Keywords:** Nutritional diet, shariya tribe, anthropometric measurement, source of income.

### Introduction

About half of the World's total population of indigenous people, often referred as tribals, is living in India. The tribal population in Indian language known as "Adibasi", stands for original inhabitants, constitutes 8.10 per cent of the total Population of India. Most of them

are small communities with relatively low growth rate compared to rest of the population. Government of India identified a total of 72 such tribal communities, as primitive tribes on the basis of low growth rate, pre agricultural level of technology and extremely low level of literacy. The Shariya is one of those primitive tribes inhabiting 'Baran' district in the State of Rajasthan. The total population of Shariya is 79,312 with sex ratio of 951 females per 1000 males. A majority (93%) of the Shariya population is inhabitants of Kishanganj and Shahbad blocks of Baran district. The tribal populations are 'at risk' of under nutrition because of their dependence on primitive agricultural practices, and uncertainty of food supply (Rao *et al.* 2006). As per the 2011 census, the scheduled Tribe (ST) population of Rajasthan state is 9,238,534. Out of twelve (12) tribes scheduled for the State, it constitutes 93 per cent whereas Garasia, Damor, Dhanka and saharia combine to form 6.60 per cent of the total ST population. Six tribes, Bhil, Meena, Naikda, Kathodi, Patelia, Kokna and Koli Dhor along with the generic tribes constitute the residual 0.3 per cent of the total tribal population. The socio economic conditions like agriculture pattern and occupation profiles are different among different tribes and are determined by the ecosystem they live in (Rao *et al.* 1996) Several studies have shown a close relationship between tribal ecosystem and their nutritional status. Nutritional status of population largely depends on the consumption of food in relation to their needs, which in turns is influenced by the availability of food and purchasing power. Periodic monitoring of the nutritional status of the population is vital to measure the impact of strategies to improve nutrition as well as economic growth (Varadharajan, 2013). Women with poor health and nutrition are more likely to give birth to low weight infants. They are also less likely to be able to provide food and adequate care for their children. Finally, a women's health affects the household economic well-being and as a women with poor health will be less productive in the labour force (Rao *et al.* 2010). The majority of the antenatal women were moderately anemic (58.38%) and were under 20 years of age Khan *et al.* (2014). It includes iron deficiency anaemia, vitamin deficiency, also calcium deficiency, malnutrition and some allergic diseases affect to the lactating mother. These diets should be included in the daily diet for the lactating mothers to prevent the deficiency diseases, (Bose, 2010). Therefore, a survey was carried out by the National Institute of Nutrition (NIN) during October – November 2004, with an objective to assess the diet and nutritional status of Saharia tribal lactating women.

## Methodology

One twenty lactating women 0-12 months (i.e. sixty-sixty from both the panchayat samilti) ranging between 18-45 years were selected for the present study. The study was conducted in Kishanganj and Sahabad of Baran district as these serve as major residence of Shariya inhabitants. As per the objectives, the data were collected using anthropometric measurement techniques for height & weight and for calculating the body mass index which was expressed as ratio of weight (kg) to height in metre square. Further, the individuals were classified into different classes based on WHO, (2006). Food intake was also calculated using 24 hour recall method. Types of food consumed were assessed and quantity of raw foods was reported in grams. Per cent adequacy of food intake was assessed by RDI for moderate women recommended by NIN-2010 used for analyzing the per cent adequacy of food intake.

Nutrient intake was calculated using food composition tables (Gopalan *et al.* 1989). Mean nutrient intake for one day was compared with recommended dietary allowances (ICMR-2010)

Frequency and per cent age were used to analyze general background information Biochemical analysis for hemoglobin estimation was also conducted and hemoglobin was assessed in gm/dl along with findings of clinical signs and symptoms related with anemia.

## Results and Discussion

All respondents selected (lactating women 0-12 months) were lying in the age group of 18-45 years. Among them 70.00% lactating women (0-6 months) were in the age group of 15-25 year in similar percentage of women while in age of 26-35 year 23.33% and 26.66%, respectively. Most of the lactating women 0-6 month had (81.66%) of monthly income ` 5000-10000 *i.e.* the income of remaining 18.33% women's income was ` 10000-15000 per month. Income of 61.66% of lactating women (6-12 months) was ` 5000-10000 per month. The main source of income lactating women was labour (86.66%), 9.16% women were depending on farming and 4.16% other sources of income. The results were also showed that 67.50% lactating women were working while only 32.50% were non-working. Most lactating women (0-6 month) had nuclear families *i.e.* 71.66%, only 28.33% had joint family while majority of the (6-12 month) *i.e.* 86.66% had nuclear families and remaining 13.33% were in joint family. Lactating women lived in kaccha house were 60.83% and the remaining 39.16% in mixed house. It is also pointed out that most of the deliveries *i.e.* 92.5% were accrued in the hospital while 7.50% deliveries at home. Maximum lactating women (72.50%) were non-vegetarian and remaining 21.66% and 05.83% were vegetarian and eggitarian, respectively. It

was found that 20% of the lactating women (0-6 month) were taking laddu as a special food; further 33.33% lactating women and 15.00% were consuming daliya and panjeri, respectively. While 15% of lactating women (6-12 month) were consuming laddu, 25% were consuming daliya and 13.30% were consuming panjeri. There were some bad practices among the lactating women *i.e.* 7.50% smoking bidi and 47.50% women were taking other chewing materials (zarda and gutka).

The anthropometric indices like mean, height and mean weight of lactating women was 154.03 cm (0-6 months), 155.18 cm height (6-12 month) and 49.36 kg (0-6 month) and other 52.08 kg weight (6-12 month) of lactating women, respectively and Distribution of lactating women on the basis of BMI showed that although 66.66% (0-6 month), 61.66% (6-12 month) respondents were in normal range but 38.33% were under weight.

Clinical findings indicates that 46.60% lactating women (0-6 month), and 33.33% (6-12 month) were having normal hair, whereas 21.66 % (0-6 month) and 18.33% (6-12 month), 25% (0-6 month) 35.00% (6-12 month) lactating women showed lack of luster and thinness, respectively which is a sign of protein deficiency. It was found that eyes of majority of lactating women (0-12 month), *i.e.* 91.66% in 0-6 month, and 90.00% in 6-12 month lactating women had normal eyes, and whereas 100% had normal lips. Lactating women were having normal teeth while only 13.33% (0-6 month), 6.66% (6-12 month), 1.66% (0-6 month), 5.00% (6-12 month), lactating women had dental carries, loss of enamel, respectively.

The dietary survey conducted by “24 hour recall” method for 1 day revealed that lactating women (0-12 month) were following two meal patterns. Main preparation of meal was chapatti, dal, meat and meat product or seasonal vegetables, chutney and butter milk. Dietary intake of respondents in comparison to the Recommended Dietary Intake (RDI) was substantially low. The diet of lactating women (0-12 months) included fruits (13.33%, 35.50%), roots and tubers (20.25%, 17.66%), milk and milk products (23.16%, 31.66%), green leafy vegetables (43.38%, 46.50%) and pulses (14.44%, 26.61%) and cereals (86.60%, 81.10%), fats and oil (77.00%, 75.26%) other vegetables (60.00%, 50.14%) and meat and meat products (91.77%, 93.24%). Further “z” value calculated between intake of food groups and RDI, showed highly significant ( $p < 0.01$ ) difference in foods like milk and milk products, roots and tubers, other vegetables, meat and meat products and fat and oil, and sugar Significant ( $p < 0.05$ ) difference was found in the intake of fruits, pulses and cereals and no significant difference was observed in green leafy vegetables intake.

Nutrient intake was calculated by using food composition tables (Gopalan *et.al.* 1989) and DBMS packages. It was compared with Recommended Dietary Allowances (NIN, 2010). The mean nutrient intake of energy 0-6 month lactating women was  $2114.4 \pm 432.4$ g/d and 6-12 month lactating women was  $2013 \pm 355.93$ g/d. Similarly mean intake of protein was  $57.92 \pm 9.56$ g/d, carbohydrate was  $256.20 \pm 52.62$ g/d,  $219.78 \pm 33.27$ g/d, fat was  $25.25 \pm 9.00$ g/d,  $20.14 \pm 5.20$ g/d. Regarding intake of micronutrient in the diet of vitamins like  $\beta$ -carotene and ascorbic acid were found to be  $3392.21 \pm 2994.29$  $\mu$ g/d,  $1933.60 \pm 1471.02$  $\mu$ g/d and  $78.78 \pm 48.78$ mg/d,  $71.90 \pm 38.52$ mg/d in 0-6 month and 6-12 month lactating women respectively. Calcium and iron intake was  $867.38 \pm 387.79$ mg/d,  $729.84 \pm 371.04$  mg/d and  $19.83 \pm 4.01$ mg/d,  $18.08 \pm 2.84$ mg/d respectively in the diet of lactating women. Further “z” value was calculated between the nutrient intake and RDA and it was found that the intake of carbohydrate ( $p < 0.05$ ) and energy ( $p < 0.01$ ) was comparatively lower than RDA, whereas no significance difference was found in the intake of protein, fat, iron, calcium, zinc,  $\beta$ -carotene and ascorbic acid.

### **Conclusion**

It is clear that the problem of malnutrition in India is of alarming magnitude. A major part of this problem is contributed by rural population. Tackling malnutrition in rural area requires a holistic approach, especially when targeting populations of rural women. From the finding of the present study it can be concluded that, even after the efforts of government the knowledge about nutrition has not reached to rural school children and mothers up to desired level. The above results revealed that majority of the respondents were lying in category of under nutrition. The mean intake of the food and nutrient was found to be lower than the reference values. The study illustrates that most school going children fail to meet dietary intake recommendations in all food groups. The mean intake of all the nutrients i.e. energy, protein, fat, carbohydrates,  $\beta$ - carotene, thiamine, riboflavin, niacin, carbohydrate, ascorbic acid, iron, calcium was found to be inadequate. This is most likely due to the fact that children were belonging to low socio-economic status, percentage of illiteracy of their mothers was higher they were skipping meals on regular basis. As finding of the present study indicate that there is significant lack of nutritional knowledge among education deprived respondents hence nutrition and a monthly diet plan should be advised to the respondents according to their requirement.

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**Table 1:** Percentage distribution of respondents in view of general information

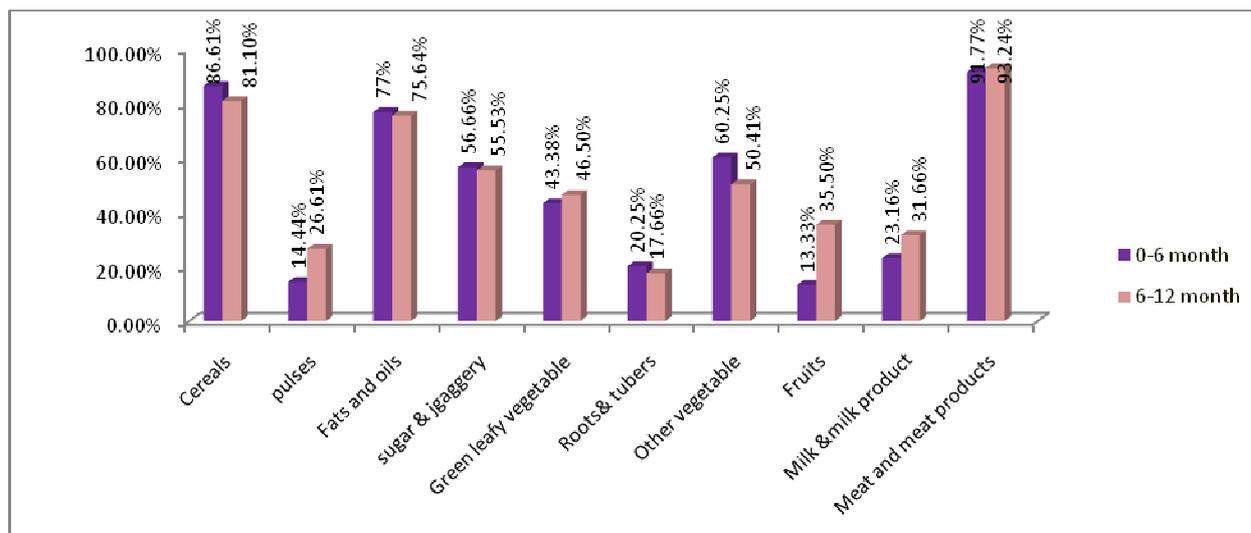
Particulars		0-6 Month n=60	6-12 Month n=60	Overall N=120
Age	15-25 year	70.00% (42)	66.66% (40)	68.33% (82)
	25-35 year	23.33% (14)	26.66% (16)	25.00% (30)
	35-45 year	6.66% (4)	6.66% (4)	6.66% (8)
Income per month	5000-10,000	81.66% (49)	61.66% (37)	71.66% (86)
	10,000-15,000	18.33% (11)	38.33% (23)	28.33% (34)
Sources of Income	Labour	78.33% (47)	95.00% (57)	86.66% (104)
	Farming	13.33% (18)	5% (3)	9.16% (11)
	Other	8.33% (5)	0% (0)	4.16% (5)
Working Status	Working	61.66% (37)	73.33% (44)	67.5% (81)
	Non-working	38.33% (23)	26.66% (16)	32.5% (39)
Family Type	Nuclear	71.66% (43)	86.66% (52)	79.16% (95)
	Joint	28.33% (17)	13.33% (8)	20.83% (25)
Housing	Kaccha	41.66% (25)	80.00% (48)	60.83% (73)
	Mixed house	58.33% (35)	20.00% (12)	39.16% (47)
	Pakka	0	0	0

Values in parenthesis represent number of respondents

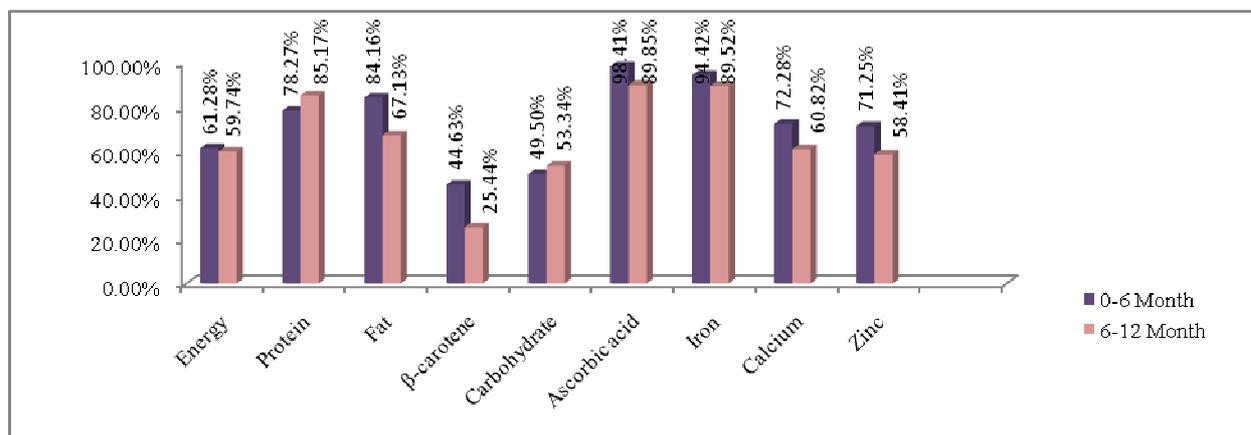
**Table 2:** Per cent prevalence of malnutrition among the lactating women (N=120)

Anthropometry indices	Type of malnutrition	0-6 Month N=60	6-12 month N=60
<b>BMI (kg/m<sup>2</sup>)</b>			
<b>&lt;18.50</b>	<b>Underweight</b>	<b>33.33% (20)</b>	<b>38.33% (23)</b>
<16.00	Severe thinness	6.60% (4)	6.60% (4)
16.00-16.99	Moderate thinness	6.60% (4)	10.00% (6)
17.00-18.49	Mild thinness	20.00% (12)	33.33% (13)
<b>18.50-24.99</b>	<b>Normal Range</b>	<b>66.66% (40)</b>	<b>61.66% (37)</b>
<b>&gt;25.00</b>	<b>Overweight</b>	-	-
25.00-29.99	Pre-obese	-	-
<b>&gt;30.00</b>	<b>Obese</b>	-	-

Source: World Health Organization, 2000



**Fig. 1-** Food intake of respondents as percentage of balanced diet



**Fig. 2-** Nutrient intake of respondents as percentage of RDA