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A study on nutritional status of Kharia tribal females of Simdega District

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ABSTRACT

Nutritional anemia is a major problem for women in India and more so in the rural and tribal belt. Both rural and tribal women have heavy workload and anemia has profound effect on psychological and physical health. Tribal women play multiple roles in a family, primarily as mothers and housekeepers and also equally important roles as wage earners and agricultural produce. Because of prevailing culture and traditional practices in India, the health and nutritional status of women becoming worsly effected. Women simultaneously exercise roles in economic production, home production and reproduction, often with the damaging consequences for their own nutritional status.

Keywords: *Nutrition, Tribal Women, Health, Nutritional Status*

1. INTRODUCTION

In India, each state is practically equivalent to a country with its specific socio-economic level, different ethnic groups, food habits, health infrastructures and communication facilities. Thus, the nutritional status of the population shows significant variation between states since it results from a varying combination of factors. Tribal peoples are acknowledged to have very close association with the ecosystem and the environment because of their fulfillment of daily nutritional requirements with food foraged from nature[1].Tribal women play multiple roles in a family, primarily as mothers and housekeepers and also equally important roles as wage earners and agricultural producers.[2] 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. Women's nutritional need changes during menstruation, pregnancy, breastfeeding, and menopause and for being healthy highest nutrient intake is required for them. While malnutrition is prevalent among all segments of the population, poor nutrition among women begins infancy and continues throughout their lifetime. Because of prevailing culture and traditional practices in India, the health and nutritional status of women becoming worse effected. Malnutrition is like hereditary it passes one generation to another.[3] According to NFHS 4 literacy level of rural women is 51.5% overall literacy rate of women of Jharkhand was only 59%. Much less than (79.7%) males literacy rate. 35.4 percent of rural women age 15-49 are either too thin or their body mass index is below normal (BMI<18.5 kg/m^2). Under nutrition is higher in rural areas than in urban areas but is particularly common among aged 15-19. As we know, maternal/women health is largely influenced by poverty and socio cultural related factors on the one hand, and various programme interventions on the other. Socio-cultural factors that impinge on women's health include adolescent marriage, large family size norms which encourage frequent and closely spaced pregnancies, nutrition and lack of awareness of other health care and long periods of physical activity. The consequences of these underlying factors on women's health can best be judged by maternal mortality ratio (MMR). Only 47.4% of rural women had antenatal checkup during their first trimester of pregnancy and only 5.5% of rural women who had received full antenatal care during their pregnancy. 40.9% rural women received postnatal care from health personnel[4] The WHO Global Burden of Disease report ranks iron deficiency anemia as second among leading causes of disability Iron deficiency decreases the body's ability to produce hemoglobin, which is necessary to transport oxygen in the blood. The deficiency can cause fatigue, shorten attention span, decrease work capacity, reduce resistance to infection, and impair cognitive performance.35A study was undertaken to assess the impact of women's work on their health and nutritional status in

Ghana. For food intake and nutrition, it was observed that 70% of the women had only two meals in a day. The diets of rural residents were low in almost all the nutrients calculated. Using BMI as a measure of nutritional status, 31% of the women were found to be at nutritional risk.[5]

Women's participation and productivity in the economic system is adversely affected by their own eating habits and their demanding household mothering as well as their working responsibilities. Dietary life is the fundamental element affecting health maintenance women's dietary life is influenced by several environmental factors such as age, education, job, economic level, family status and residence. The role of women in determining nutrition of households and societies and the nutritional status of women are intricately liked and that women simultaneously exercise roles in economic production, home production and reproduction, often with the damaging consequences for their own nutritional status.[6]

2. REVIEW OF LITERATURE

Sathiya Susuman (2012)[7] has attempted to find out the correlates of Antenatal and Postnatal Care among Tribal Women in India, Data for this study were taken from District Level Household Survey on Reproductive and Child Health , a representative sample of 1569 Scheduled Tribes‟ currently married women aged 15-44, residing in eight districts of Chhatisgarh. Adjusted effects (odds ratios) analysis has been used to find out the effects of antenatal and postnatal care on institutional delivery in Chhatisgarh. It is observed that majority of the Scheduled Tribes‟ women, about 84 percent, have a low standard of living. Also, 74 per cent of the Scheduled Tribes‟ women are illiterate. The finding of the adjusted effects (odds ratio) shows that giving birth in the medical institution for the Scheduled Tribes‟ women who received full antenatal check up is 2.5 times higher than those women who did not receive any antenatal check-up. It suggests that majority of the currently married Scheduled Tribe women have low standard of living there is a need to improve their economic standard so that they can fulfil their basic needs.

Laxmaiah (2007)[8] carried out a cross sectional study was carried out to assess the diet and nutritional status of tribal population in ITDA, Bhadrachalam in Khammam district of Andhra Pradesh. A total of eight hundred households in twenty villages from five Mandals, were covered for survey. The study reveals average conception of all the foods except cereals and millets were below the recommended level. The average intake of all the nutrients was lower than the RDA. The extent of deficit was highest with respect to vitamin A (83per cent), followed by riboflavin (64per cent), iron (59per cent) and total fat (47per cent). Protein calorie adequacy status revealed that about half of the HHs (52per cent) were consuming adequate amounts of both protein and energy, while about 21per cent were consuming inadequate amounts of both the nutrients.

According to NFSH III (2006)[9] the highest prevalence of anemia in women (more than 60 percent) is found in eight contiguous states along the East Coast of India continuing north through Jharkhand and Bihar into the Northeast. Severe anemia is highest in Assam and Andhra Pradesh (3 percent). A malnourished mother supplies nutrients to the foetus at the expense of her own tissues. Multiple micronutrient deficiencies during pregnancy like vitamin A, zinc, iron and folic acid are common and are associated with complications during pregnancy and labour. This may lead to abortion and even death of the mother.

Udaiveer (2005)[10] Nutritional anemia is a major problem for women in India and more so in the rural and tribal belt. This is particularly serious in view of the fact that both rural and tribal women have heavy workload and anemia has profound effect on psychological and physical health. Anemia lowers resistance to fatigue, affects working capacity under conditions of stress and increases susceptibility to other diseases. Maternal malnutrition is quite common among the tribal women especially those who have many pregnancies too closely spaced. Tribal diets are generally grossly deficient in calcium, vitamin A, vitamin C, riboflavin and animal protein. The body demands of women are quite differ from men due to their physiological changes after marriage child birth and hormonal changes which requires highest nutrient intake. Female children may receive less nutrition and healthcare with consequent higher mortality rates.

3. OBJECTIVE

To study the Dietary Pattern and Nutrient Consumption of Kharia adult women of age group 18-45.

4. METHODOLOGY

4.1 Selection of the area

In Jharkhand Kharia one of the Primitive tribe among 32 tribes of Jharkhand lives in East Singhbhum, Gumla and Simdega districts. If we look briefly their living place in simdega district is different villages of Kurdeg block,Kolebira block,Bano block and kersai block. For the present study Simdega district will be purposively selected. As of 2011 India census[12], Simdega had a population of 599,813. Males constitute 52% of the population and females 48%. Average literacy rate in Simdega as per census 2011 is 85.46% being higher than the national average, of which males and females are 89.22% and 81.54% literates respectively. Simdega is located in a minority concentrated district. Almost, 51.14% of the Population is Christian included among these are Catholic, Lutheran, Church of North India and others. It is highest Christian majority region in Jharkhand and in Central India. Hinduism consist of 33.61% of the Population .Muslim Population consist of 2.52% of the Population.

4.2 Selection of the Sample

The total number of respondent randomly selected was 250 females. The entire samples selected were of the age group 19-45 years; all respondents were from primitive tribe Kharia for the research work purposively.

4.3 Tools and techniques to be used in the data collection

For the collection of data a structured schedule will be developed. Respondents who were not pregnant and mother of above one year child were selected randomly for data collection. The collected data was tabulated, classified and analyzed through appropriate statistical test. Schedule will be consisted of following information:

4.4 General Profile

The data regarding the general profile of the respondents were collected using the first part of the schedule. The parameter was named, age, and family type, no. of family members, educational qualification and occupational status.

4.5 Dietary Survey

The 24 hours dietary recall method (Swaminathan, 2006)[11] was adopted for the present study in per day. The calculation for the nutrient intake was done with the help of "Nutritive value of Indian food" (C. Gopalan 2006)[12] and compared with recommended dietary allowance given by ICMR consumption frequency of food. The information related to dietary pattern, Frequency of consumption of food groups and nutrient intake with reference to protein, fat, carbohydrate, energy, iron, calcium, vitamin A, thiamin and riboflavin was recommended. The information taken from the respondents including menu, ingredients, and amounts used for the preparations.

Table 1: Shows the nutrient recommendation classified by work.

Classification	Work
Sedentary worker	Teacher, Tailor, Hair Dresser, Executive, House Wife Nurses.
Moderate worker	Maid-Servants, Basket Maker, Weaver, Agricultural Labour, Bedi Maker.
Heavy worker	Stone cutter, Mine –worker, Sports-women.

4.6 Anthropometric Measurements

Height, weight, Body mass index of each respondent was calculated from the recorded measurement of weight (kg), height(m2) using the formula as given

BMI=Weight(kg)/Height(m2).

5. STATISTICAL ANALYSIS

The present study used simple percentage analysis and chi-square test and two tailed t- test for the analysis of collected data.

$$\chi_c^2 = \sum \frac{(O_i - E_i)^2}{E_i}$$

6. RESULT AND DISCUSSION

Analysis of data based on the information gathered from the 250 Kharia tribal adult females of Simdega district.The result obtained was presented in the following sections:-

7. GENERAL INFORMATION

Table 2: Age of respondents

Age of Respondents		n=250	S.D
18 TO 30	174	69.60%	7.26
31 TO 45	76	30.40%	

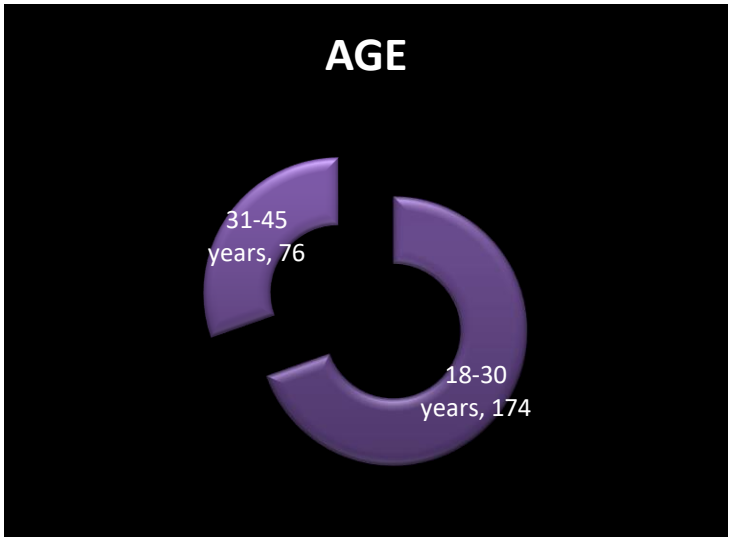

Fig. 2.1: Percentage of respondents on the basis on Age.

The above table and figure are showing the distribution of age. The mean age of all the respondents surveyed was 29 years. It was found that the majority of respondents (69.6%) belonged to the age group of 18-30 years. While only (30.4%) of respondents belonged to the age group of 31-45 years. The standard deviation of age of the respondent was 7.26. Most of the respondents (91%) were follow Christian religion and only (9%) were Kharia Sarna religion. Maximum (66.4%) were married and 98% had kutcha type of House.

Nutritional Status of Kharia Adult Women

Table1 3.1.a : BMI of Kharia adult Women.

Obesity	BMI (kg/m)	No.	%	Test Statistics	
Underweight	18.5	70	28	Chi-Square	219.248[a]
Normal	18.6-24.9	154	61.6	Asymp. Sig.	.000
Overweight	25-29.9	26	10.4		
Obesity	30-34.9	0	0		
Extreme	35-39.9	0	0		
Obesity	>40	0	0		
Total		250	100		

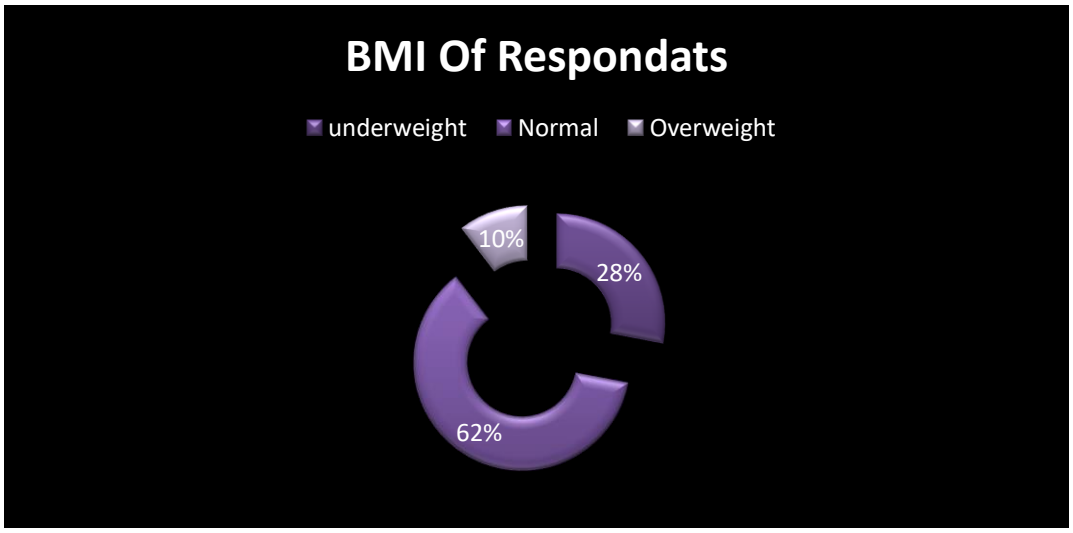

Figure 3.1.a: shows the BMI of respondents

Nutritional status as indicated by BMI (figure 1) shows that 61.6% women had normal BMI, 28% of women are Underweight and 10.4% of women were overweight. X^2 (.000) rejects the significant relationship between variables.

Biochemical assessment of Kharia tribal female

Table 3.1 b: HB

HB	No.	%
Normal (12 & above)	2	0.8
Mild (11-11.9)	12	4.8
Moderate (8-10.9)	229	91.6
Severe (less than 8)	7	2.8
Total	250	100

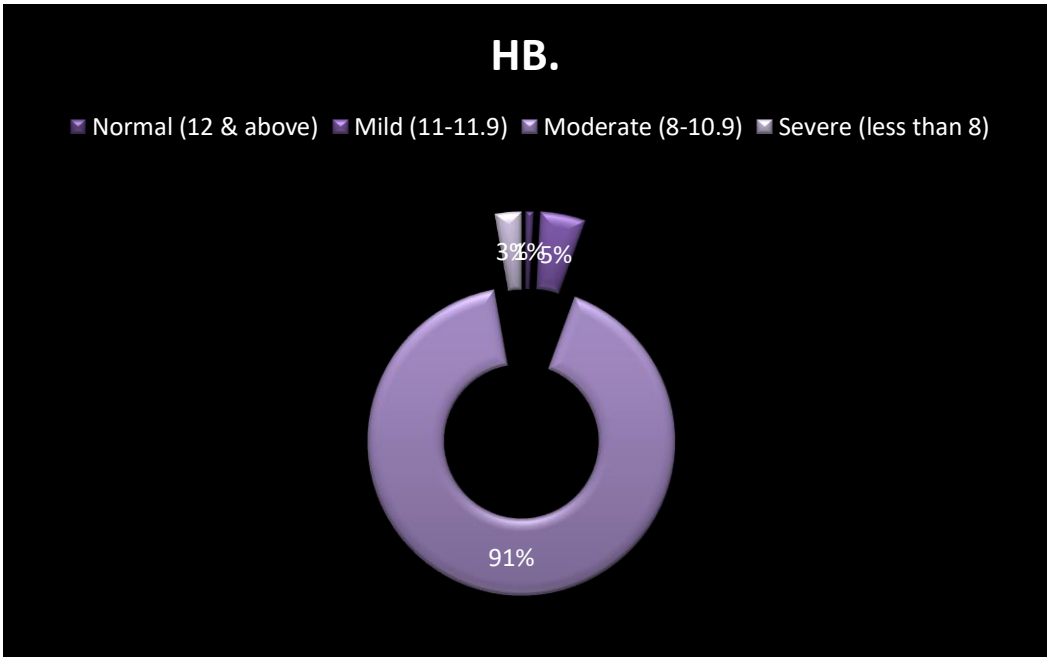

Fig. 3.1.b: Shows the hemoglobin level of respondents

No.	Mean	Std. Deviation	Std. Error Mean	t_cal	Df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
								Lower	Upper
250	9.4141	.79358	.05029	187.193	248	.000	9.41406	9.3150	9.5131

Table no 3.1 b shows the hemoglobin level of respondents majority of respondents (91.6%) were suffering from moderate anemia. (4.5%) were mild anemia, (2.8%) were suffering from severe anemia. After applying t-test at 1% level of significance rejected.

8. DIETARY ASSESSMENT

Frequency of the food consumption

The data shown in table no. 2, frequency of consumption of rice as daily cereal. Rice is a staple cereal in Jharkhand State. Pulse consumption by respondents is maximum showed by approximately half of the respondents (51.2%) 2-4 times in a week, (40.4%) consume pulse 1-2 times in a week and very small size approx (8.4%) of population consume pulse 4-6 times in a week. Majority of the population (52.4%) never consume milk, (34.8%) consume occasionally. Consumption of Green leafy vegetable was seen majority in 1-2 times (47.6%) in a week. Consumption of Other vegetable was maximum in(43.6%) 1-2 times in a week. Consumption of root and tuber was seen (50.4%) 4-6 times in a week majority. Consumption of fruits was majority in occasionally (59.4%). Consumption of meat and meat product was mostly 1-2 times in a week (84%).

Table :no 4 .1 Frequency of Food Consumption

1	Frequency of consumption of rice	No.	%	Chi-square Test(P-Value)	
	Daily	250	100		
	Total	250	100		
2.	Frequency of consumption of pulse	No.	%	Chi-square Test(P-Value)	
	4-6 times in a weak	21	8.4	Chi-Square	74.312[a]
	2-4 times in a weak	128	51.2	Df	2
	1-2 times in a weak	101	40.4	Asymp. Sig.	.000
	Total	250	100		
3.	Frequency of consumption of milk and milk product	No.	%	Chi-square Test(P-Value)	
	Never	131	52.4	Chi-Square	157.744[a]
	Occasionally	87	34.8	Df	3
	1-2 times	27	10.8	Asymp. Sig.	.000
	2-4 times	5	2		
	Total	250	100		
4.	Green leafy vegetable consumption	No.	%	Chi-square Test(P-Value)	
	4-6 times	20	8	Chi-Square	100.752[a]
	2-4 times	80	32	df	3
	1-2 times	119	47.6	Asymp. Sig.	.000
	Daily	31	12.4		
	Total	250	100		
5.	Other vegetables	No.	%	Chi-square Test(P-Value)	
	4-6 times	36	14.4	Chi-Square	96.464[a]
	2-4 times	91	36.4	df	3
	1-2 times	109	43.6	Asymp. Sig.	.000
	Daily	14	5.6		
	Total	250	100		
6.	Root & Tuber	No.	%	Chi-square Test(P-Value)	
	4-6 times	126	50.4	Chi-Square	112.080[a]
	2-4 times	69	27.6	df	3
	1-2 times	43	17.2	Asymp. Sig.	.000
	Daily	12	4.8		
	Total	250	100		
7.	Fruits consumption frequency	No.	%	Chi-square Test(P-Value)	
	Occasionally	149	59.6	Chi-Square	193.872[a]
	1-2 times	71	28.4	df	3
	2-4 times	10	4	Asymp. Sig.	.000
	Never	20	8		
	Total	250	100		
8.	Meat and meat product	No.	%	Chi-square Test(P-Value)	
	1-2 times	210	84	Chi-Square	291.200[a]
	2-4 times	30	12	df	2
	4-6 times	10	4	Asymp. Sig.	.000
	Total	250	100		

Meal

Pattern: Meal Pattern of Kharia Adult Female

Table 4.2: Meal Pattern

1.	Meal pattern	No.	%	Chi-square Test(P-Value)	
	3 times meal pattern	180	72	Chi-Square	183.200[a]
	2 times meal pattern	60	24	Df	2
	4 times meal pattern	10	4	Asymp. Sig.	.000
	Total	250	100		

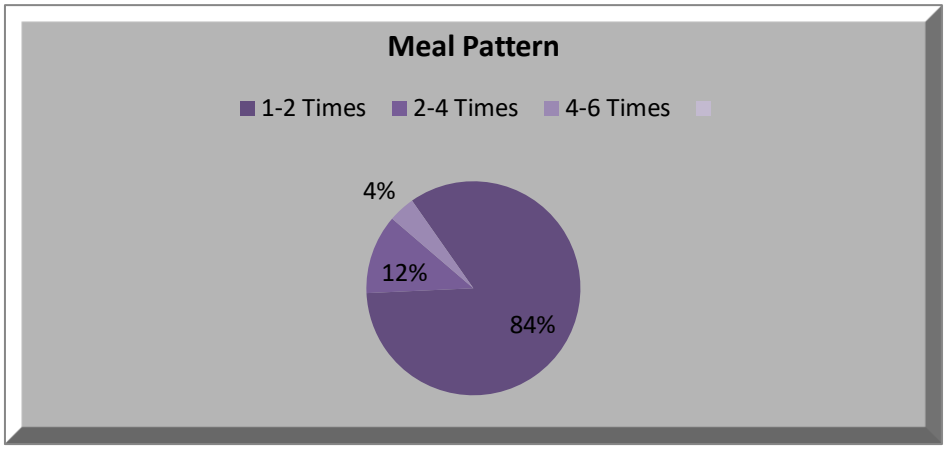

Fig. 4.2: Meal pattern of Kharia Women

After study it was found that majority of the population (72%) follow 3 time Meal Pattern (24%) of respondents follow 2-times meal pattern and only (4%) of respondents follow 4-times meal in a day meal Pattern.

Dietary intake of Respondents

Table 5: Dietary Intake of Kharia adult women

Nutrients	N	Mean	Std. Deviation	Test Value	Mean Difference	t	df	Sig. (2-tailed)	95% Confidence Interval	
									Lower	Upper
Energy(kcal/d)	250	1505.94	290.75	2230	-724.065	-13.87	249	.000	-830.71	-617.42
Fat(g/d)	250	14.21	4.16	25	-10.79	-14.44	249	.000	-12.31	-9.26
Protein(g/d)	250	28.04	13.01	55	-26.96	-11.53	249	.000	-31.74	-22.19
CHO(g/d)	250	280.07	61.92	0	280.07	25.18	249	.000	257.35	302.78
Calcium(mg/d)	250	304.17	124.50	600	-295.83	-13.23	249	.000	-341.50	-250.17
Iron(g/d)	250	18.34	7.23	21	-2.66	-2.05	249	.049	-5.31	-0.01
Thiamin(µ/d)	250	6.26	4.51	1.1	5.16	6.38	249	.000	3.51	6.81
Riboflavin(µ/d)	250	0.39	0.24	1.3	-0.91	-21.44	249	.000	-0.99	-0.82
Niacin (µ/d)	250	9.74	10.01	14	-4.26	-2.37	249	.024	-7.93	-0.59
Dietary Folate (µ/d)	250	149.91	67.97	200	-50.09	-4.10	249	.000	-75.02	-25.16
Vitamin A(µ/d)	250	1589.18	1172.35	4800	-3210.82	-15.25	249	.000	-3640.84	-2780.80

Dietary intake of respondent was assessed by 24 hour diet recall method. Table no. 5 shows that nutrient intake of respondents was very poor in comparison to Recommended dietary allowance. After simple mean value and statical analysis it was very clear that consumption of nutrients regarding Energy, CHO, protein, fat, iron, calcium was very low. And it will lead to deficiency diseases of specific nutrient.

9. CONCLUSION

After this study it was found that Kharia tribal female were come from very low socioeconomic status. 28% of women are underweight. They do not consume as recommended to fulfill the nutritional demand for healthy living. Their dietary energy intake is not adequate to compensate their heavy physical workload. Their meal pattern is not good. Most of them only take meals three (72%) or two times (24%) only. No snacks in between meal. Either little amount of puffed rice with tea was taken in very few population. The frequency of consumption of nutritional food stuffs like pulses, milk, fruits and meat and meat products was taken in very less amount or irregular. It was very clear that consumption of nutrients regarding Energy, CHO, protein, fat, iron, calcium was very low. And it will lead to deficiency diseases of specific nutrient.

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