

## Nutritional Status of Three Tribal Populations of Jharkhand State in Relation to Environmental Conditions

B. N. Pandey, P. K. L. Das, A. K. Ojha and A. K. Jha

Eco-genetical Research Laboratory, P.G.Department of Zoology, Purnia College, Purnia-854301 (Bihar)

### Abstract

The present study was carried out to find out the nutritional status of three tribal populations- Santhal, Ho and Bhumij, inhabiting in different environmental conditions i.e. industrialized and dense forested regions of Jharkhand State. The Population inhabiting in industrialized region have least calorific intake (Santhal- 1967. 25 K.Cal: Ho- 2003.20 K.Cal. and Bhumij-1942. 11 K.Cal) than the population of dense forested region (2553. 30 K.Cal. Ho-2426.86 K.Cal. and Bhumij 2008.18 K.Cal.). No doubt, industrialization provides better opportunities to earn money but its major portion is wasted on the elevation of so called standard of living and the Theka (Wine shop) besides, immigration among tribal also resulted in changed nutritional as well as calorific intake. The diet of these tribal populations is inadequate as per Indian standards. The deficiency in diet is both qualitative and quantitative, as a result population suffers from a large number of nutritional disorders like anemia, night blindness, bigot spot etc. on the basis of the study it is suggested that a short term training programme should be launched at Panchayat level to provide knowledge of balanced diet or essential nutrients of the food as per requirements of Men, Women and children.

**Key Words :** *Tribal population, Nutritional status, Environmental condition, Jharkhand.*

### Introduction

Information regarding nutritional status of tribal groups is still very scanty but they are essential in formulating nutritional programme. In this direction, Anthropological Survey of India (ASI) started in 1948 and the Systematic investigation on the dietaries, nutrition and adequacy of foods. The study conducted by Sen Gupta in Abor Hills of Arunachal Pradesh on different tribal population revealed that they suffer from malnutrition. Jain and De 1964 has studied the plant foods among tribal of West Bengal. Gupta 1974 has pointed out that the low consumption of cereals by Birhors and Korwas is compensated by the higher consumption of wild roots and tubers. Pandey and Sharma 1998 have reported a variety of disease like anaemia, Night blindness, endemic goiter, gingivitis, skin dry and rough, angular stomatitis etc. due to malnutrition in the tribes of Purnia district (Bihar).

Malnutrition has emerged as a major health problem of much population (Rao *et al.* 1986, Basu *et al.* 1989, Sharma 1992 and Pandey 1999). A malnourished body is the victim of a number of deficiency diseases. Eating habits and diet pattern have changed considerably over rather a short period of about half a century and so physical activity pattern. The diet and disease relationship appears relevant to coronary artery diseases, hypertension, diabetes mellitus and some form of cancer (Wasir 1995). Nothing is known about the nutritional status of the tribal population in newly created Jharkhand state. Therefore the present work was undertaken which deals with the food, nutrients and calorific intake of three tribal populations (Santhal, Ho and Bhumij) of Industrialized and dense forested regions.



## Study Area

The present study was conducted on East Singhbhum (Jamshedpur), which is one of the most industrialized districts of Jharkhand state having two diametrically opposite environmental conditions of industrialized and densely forested regions of Potka and Musabani blocks respectively. It was taken into consideration after assimilating three tribal populations i.e. Santhal, Ho and Bhumij.

## Materials and Methods

Data on food, food habits and food consumption pattern were collected with the help of questionnaires and by personal interview with the trials inhabiting industrialized and dense forested regions by using recalls methods. The mean daily food intake was analysed with respect to different groups viz. Cereals, pulsed, green leafy vegetables, other vegetables, roots, tubers, milk products, fats, oils and beverages etc. The respondents were asked to estimate the amount of different food consumed in possible units. The main nutrient intake was computed using food table as suggested by Gopalan *et al.* 1981 with respect to carbohydrates, proteins and fats.

## Results and Discussion

Generally, the populations of this area use to take two meals in a day - morning and evening. But children take food three to four times daily. Majority of the studied populations are known non-vegetarian. From the Table-1 it is quiet clear that rice consumption is highest among tribal of dense forested regions as well as the consumption of roots and tubers, green leafy vegetables, fruits, fats and oils is also more than the populations of industrialized region. The tribal populations of industrialized region have higher consumption of wheat, meat, fish and eggs. The intake of pulsed and beverages pattern was almost equal in tribal of both the regions. The variation in food intake among them is due to easy availability and cost affectivity of the food. The diet of majority of the tribal groups of the present study is inadequate as per the Indian standards. The deficiencies are both qualitative and quantitative. The intake of pulses is marginal and that of milk is negligible.

It is clear from the Table-2 and Figure-1 that tribal groups are of potka study cluster have least calorific intake in comparison to tribal groups of densely forested region of Musabani cluster. Despite the fact that tribal groups living in the industrialized region ET more money but major portion of the earned money goes to Theka (wine shop). Further their living condition is higher in comparison to those living in densely forested region. Likewise, population living in the dense forested region still gets some forest products like fruits, flowers, roots and tubers to meet their food intake. Further, they are addicted to Handia (rice beer), which is prepared from fermented boiled rice. Rice beer is the rich source of minerals.

There is in fact a direct relation between calorie intakes, work out and body weight. If an adequate supply of calorie is not available, people become lethargic and sluggish, movements become slow, infrequent and interrupted by long pauses and any continuous efforts is avoided as far as possible. This condition is largely a result of the inadequacy in food consumption. During fieldwork of the present investigation, it was realized that most of the tribal population is weak, lethargic and sluggish, particularly Bhumij, due to inadequacy of energy intake. It is to be noted that the tribal population inhabiting forested regions are landless or having a very little land and have no irrigation facilities. Due to lack of irrigation facilities, the crop yield is very poor, which is sufficient only for a few months. For rest of the period they have to depend on other sources of livelihood. Further, increasing rate of deforestation is one of the major causes of scarcity of forest products used by these tribal as food. As a result they have become victim of malnutrition.



Table -1: Mean daily food intake in grams by Tribal population of industrialized and dense forested regions of Jharkhand State

Food Type	Industrialized Regions			Densely Forested Regions		
	Santhal	HO	Bhumij	Santhal	HO	Bhumij
Rice	158.33	166.67	155.00	180.00	183.33	161.67
Wheat	55.00	50.00	46.67	50.00	53.33	41.67
Maize	36.67	36.67	36.67	46.67	46.67	33.33
Coarse Grains	71.67	80.00	83.33	73.33	73.33	80.00
Pulses	30.00	26.67	36.67	31.67	33.33	20.22
Leafy Vegetables	70.00	70.00	70.00	133.33	133.33	113.33
Other Vegetables	43.33	40.00	40.00	63.33	63.33	30..
Roots and Tubers	86.67	73.00	80.00	133.33	133.33	162.67
Fruits	26.67	26.67	20.00	66.67	66.67	46.67
Milk and Milk Products	-	-	-	-	-	-
Meat, Fish and Egg	103.33	93.33	93.33	90.00	96.67	80.67
Fats and Oils	25.00	30.00	25.00	33.67	40.00	25.00
Beverages	146.67	150.00	136.67	150.00	146.67	180.00

Migration is associated with nutrition as well as other changes in living style that may, in turn affect health (Friis *et al.* 1998). In the present investigation, one of the major factors considered to influence nutrient intake is the migration. The non migrants (forest dwellers) have better intake pattern of energy in comparison to industrialized region where tribal populations have migrated from digger corners in search of jobs. Hanna and Fitzgerald 1993 have found alteration in dietary pattern among three migrant Samoan communities as a result of acculturation. The present investigation lends support to them. People suffering from malnutrition may fall easy prey to incurrent ailments. In addition to diseases, directly attributable to malnutrition, it is now known that it aggravates the clinical course of many infectious diseases. Thus directly or indirectly it accounts for ill health. On the whole it can be concluded that tribal populations of these industrialized and dense forested regions need special attention for providing daily dietary allowance. It is suggested that a short-term training programme should be launched at panchayat level to provide knowledge of balanced diet for essential nutrient constituents of the food as per requirements of children, men and women.

## Acknowledgements

The financial help for this work was provided by the Ministry of Environment and Forests, Govt. of India, New Delhi, under the project entitled- "Pattern of Human Settlement in and Around the North Gangetic Belt of Bihar with particular reference to certain Scheduled Tribes", under MAB programme Ref. No. - 14/5/94-MAB/RE, under the guidance of Dr. B. N. Pandey, Principal Investigator, P.G. Department of Zoology, Purnia college, Purnia- 854301 (Bihar).



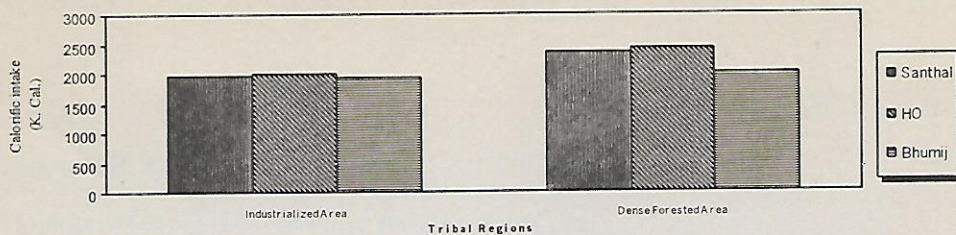
Table-2: Mean daily nutrients intake and calorific value of the tribal population of industrialized and dense forested regions of harkhand state (India)

Total	Industrialized Region												Dense Forested Region																			
	Beverages	Fats & Oils	Meat, Fish & Egg	Milk & Milk Product	Fruits	Roots & Tubers	Other Vegetable g	Leafy Vegetable g	Pulses	Coarse Grain	Maize	Wheat	Rice	Food Items	Santhal			HO			Bhumij			Santhal			HO			Bhumij		
															Carb.	Prot.	Fat.	K.Cal.	Carb.	Prot.	Fat.	K.Cal.	Carb.	Prot.	Fat.	K.Cal.	Carb.	Prot.	Fat.	K.Cal.	Carb.	Prot.
337.29	10.20	-	5.63	-	4.61	22.69	5.32	4.85	17.54	51.29	36.41	57.26	123.44	Carb.																		
65.06	2.23	-	14.79	-	0.30	2.56	1.44	2.51	7.43	5.83	6.11	9.99	11.87	Prot.																		
38.91	1.52	25.00	4.96	-	0.11	0.11	0.15	0.55	0.26	1.28	1.41	1.41	1.58	Fat.																		
1967.25	72.93	225.00	126.16	-	20.59	101.75	28.38	34.30	102.24	238.64	281.33	281.83	547.83	K.Cal.																		
338.27	10.43	-	5.11	-	4.61	19.20	4.91	4.85	15.59	57.28	52.05	52.05	127.83	Carb.																		
62.69	2.28	-	13.36	-	0.30	2.16	1.33	2.51	6.60	6.46	9.08	9.08	12.50	Prot.																		
43.50	1.55	30.00	4.49	-	0.11	0.09	0.14	0.55	0.24	1.40	1.28	1.28	1.67	Fat.																		
2003.20	74.58	270.00	113.97	-	20.59	86.09	26.20	34.30	90.88	266.07	255.75	255.75	576.67	K.Cal.																		
333.20	9.50	-	5.21	-	3.46	20.94	4.91	4.85	21.43	59.65	48.58	48.58	118.89	Carb.																		
63.80	2.07	-	13.25	-	0.22	2.36	1.33	2.51	90.8	6.76	8.48	8.48	11.63	Prot.																		
38.29	1.41	25.00	4.48	-	0.08	0.10	0.14	0.55	0.32	1.48	1.20	1.20	1.55	Fat.																		
1942.11	67.95	225.00	113.87	-	15.44	93.92	26.20	34.30	124.96	277.37	238.70	238.70	534.30	K.Cal.																		
395.50	10.43	-	4.93	-	11.52	34.91	7.77	9.24	27.77	52.48	52.05	52.05	138.06	Carb.																		
74.71	2.28	-	12.99	-	0.75	3.93	1.90	4.77	11.77	5.97	9.08	9.08	13.50	Prot.																		
51.52	1.55	36.67	4.28	-	0.27	0.16	0.22	1.04	0.42	1.31	1.28	1.28	1.80	Fat.																		
2353.30	74.58	330.00	109.87	-	51.48	156.53	41.48	65.33	161.88	244.20	255.75	255.75	622.80	K.Cal.																		
403.18	10.16	-	5.39	-	11.52	34.91	7.77	9.24	29.23	52.18	55.52	55.52	140.62	Carb.																		
77.10	2.27	-	13.72	-	0.75	3.93	2.11	4.77	12.38	6.97	9.68	9.68	13.75	Prot.																		
55.34	1.54	40.00	4.65	-	0.27	0.16	0.22	1.04	0.44	1.31	1.36	1.36	1.83	Fat.																		
2426.86	72.97	360.00	117.94	-	51.48	156.53	41.48	65.33	170.40	244.20	272.80	272.80	634.33	K.Cal.																		
350.91	8.97	-	4.71	-	8.06	42.32	3.68	7.86	17.54	57.29	43.38	43.38	124.00	Carb.																		
64.62	2.06	-	12.60	-	0.52	4.77	1.00	4.06	7.43	6.43	7.57	7.57	12.13	Prot.																		
38.01	1.39	25.00	4.10	-	0.19	0.19	0.11	0.89	0.27	1.38	1.07	1.07	1.62	Fat.																		
2008.18	64.72	225.00	105.82	-	36.04	189.99	19.65	55.53	102.24	265.88	213.13	213.13	55.37	K.Cal.																		



## Nutritional status

Figure -1: Calorific intake of three tribal populations of Jharkhand State (India)



## References

- Basu A., Jindal A., Kshatrya G., Singh P., Roy P. and Sharma K. K. N. 1989. *Genetic and Socio-cultural Determinants of Tribal Health: Bastar Tribal Groups of Madhya Pradesh* (Research Report). NIHFV, New Delhi.
- Friis Robert, Yngve Agneta and Presson Viveka 1998. Review of social epidemiological research on migrants' health: findings, methodological cautions and theoretical perspective. *Scand. J. Soc. Med.* 26 (3), 115-122.
- Gopalan C., Ramasastri B. V. and Subramanian S. C. 1981. *Nutritive Values of Indian Foods*. National Institute of Nutrition. ICMR, Hyderabad.
- Gupta S. P. 1974. *Tribes of Chotanagpur Plateau. An Ethano-Nutritional and Pharmacological Cross Section. Bihar*. Tribal Welfare Research Institute, Ranchi.
- Hanna J. H. and Fitzgerald M. H. 1993. Acculturation and symptoms: A comparative study of reported health symptoms in three Samoan Communities. *Soc. Sci. Med.* 36, 1169-1180.
- Jain S. K. and De J. N. 1964. Some less known foods among the tribal of purebia (West Bengal). *Science and Culture*. 30, 285- 2865.
- Pandey B. N. and Sharma P. D. 1998. *Report on the Project -Biological Status of tribal groups of Bihar*. ICMR, New Delhi.
- Pandey B. N. 1999. *Report On The Project -Pattern of Human Settlement in and Around the North Gangetic Belt of Bihar with Particular References to Certain Scheduled Tribes*. Ministry of Env. And Forests, Government of India, New Delhi.
- Rao H. D., Mathur Y. N. Radhaiah G. and Rao, P. N. 1986. *Health and Nutritional status of Tribal in Madhya Pradesh* (Research Project) NIN, Hyderabad.
- Sharma K. K. N. 1992. Assessment of Nutritional Status of the Khairwar Tribal Children of M.P. *J. Hum. Ecol.* 3, 47-48.
- Wasir H. S. 1995. *Life Style and Longevity. Research and Development*. Helpage, India.