

Dietary Pattern of Tribal Girls: Data From a Small City in Eastern India

Subarna Lata Sahoo and Sasmita Pal

*Department of Home Science, Sambalpur University, Samblapur 768 019 Orissa, India
Email: subarna_ls@rediffmail.com*

KEYWORDS Dietary pattern; recommended daily allowances; Oraon; demographic profile; poverty alleviation programme

ABSTRACT Children are valuable assets of a nation. Their welfare strengthens the socio-economic development of the country. They must be protected and well looked after. Balanced diet and nutritive foods are important for the good health of children. Poor nutrition affects their development. Against this backdrop, the present study explores the existing dietary pattern of the tribal girls and compares the same with available recommended dietary allowances. 150 tribal girls between 7 and 14 years of age were randomly selected from two urban setting namely, Sarlakani and Dehuripali located within Sambalpur town. Respondents' demographic and socio-economic data were collected with the help of a structured interview schedule. Information's on diets were collected using 24 hours recall method. Our analysis indicates that dietary intake of the respondents is found to be very poor and much below the recommended daily allowances. It is observed that socio-economic variables have profound influence in the dietary intake of the tribal girls. Therefore, it is suggested that government and NGOs should take immediate steps in uplifting the socio-economic standard of the tribal community.

INTRODUCTION

Children are valuable assets of a nation. Their welfare strengthens social and economic development. They have to be protected and well looked after if a country is to thrive and prosper in all spheres of human activity (Pathak and Saxena, 1979). In order to foster the socio economic development of a country, it is imperative to develop the health and personality of its citizens on proper line. Human development is both the means as well as the end of all development, for development cannot be accelerated unless manpower is optimally creative and productive (Singh, 1970).

The population of children in India has grown faster than the total population. Its share in the country's population has increased remarkably. The children population in India in 1981 census was found to be 148,015 (Das and Seshadri, 1987) and in 1991 it was found to be 298 million comprising 35.5 per cent of the total population.

India has the largest tribal population is South Asia numbering approximately over 40 millions. In other words the tribal constitute an important segment of India population representing 7.6 per cent of the total population. The tribes of India are largely found in Madhya Pradesh, Orissa, Bihar, Rajasthan, Gujrat and Maharashtra. According to a publication of Census department, tribes all over India are 427 out of which 63 tribes live in the state of Orissa (Bose, 1971).

Diet and nutrition are important for healthy life. Children's nutritional status affects their mortality and morbidity pattern, their activity level and health status. Mortality and morbidity pattern can serve as best indicator for health status. This pattern helps in the diagnosis and treatment of the diseases related to nutrition. Dietary intake also serves as the best indicator for assessing nutritional status. It depends upon the availability of food and the agro-climatic condition. Health status is also influenced by poverty. Against this backdrop, the present study has the following objectives:

- Observe the socio economic profile of the sample respondents
- Record the existing dietary pattern of the respondents
- Assess the affect of socioeconomic factors on food intake

METHODS OF DATA COLLECTION

Data for the present study were collected from 150 Oraon children and their parents residing in two different villages, namely, Sarlakani and Dehuripali, located at the outskirts of Sambalpur city. One female Non-school going child below 14 years of age constituted our sample respondent. In case of presence of more than one such child in a family the youngest was included in our sample. Most of our sample respondents

were engaged in *beedi*-making.

An interview schedule was prepared and pre-tested through a pilot survey. After necessary modification the refined, schedule was used for the collection of information. General aspects covered in the study include information on age, sex, education, family occupation, structure of family, size of the family, total monthly family income of the respondents, type of dwelling, means of water supply, hygienic condition, etc.

For the specific information on diet, oral questionnaire method was followed. But when it was found that the child was not able give correct information regarding the amount of food, an alternate means of measuring the cooked foods was adopted. Sets of standardized vessels of different sizes were used to record the foods consumed by the children and later they were converted to grams of raw food. For the green leafy vegetables, other vegetables, roots and tubers, etc. the mothers were asked about the quantity of cooked food and its proportionate share taken by the child. By this way the quantity of food eaten during the last 24 hours were converted to grams of foods in the form of cereals, pulses, milk and milk products, vegetables, fats and oils, meat and meat products.

The mean food intake was calculated and its association with the some independent variables along with the variation from balanced diet of the same age group was observed.

RESULTS AND DISCUSSION

Out of 150 children majority (49.30%) belonged to the age group 7-9 years of age. Few children (10.70%) were within the age group 13-15 years and 40 per cent children were in the age group 10-12 years.

The family income of the tribal children has been divided into 4 groups. 37.33 per cent children came from the parents whose income was Rs.750/- or less. 45.33 per cent children's family monthly income ranged from Rs.751/- to Rs.1500/- per month. Where as 14.70 per cent children's family income ranged between from Rs.1501/- and Rs.2250/-. Only 2.70 per cent children's family earned above Rs.2250/-. Maximum children (73.33%) were illiterate. 26.67 percent children had education up to 5th class only.

Very few children (12%) came from joint family and maximum (88%) were from nuclear family. 37.33 per cent children came from the family

having of 5 members, size 25.33 per cent were from family having 6 members. The remaining 37.33 per cent were from the family having more than 6 members.

It was found that all children used open field for defecation. Majority of them drink water from the tube-well. Demographic and socio-economic features of our sample respondents have been presented in Table 1.

Table 1: Distribution of children according to their age, income, education and family structure

Distribution and description	Total number of Oraon girls	Percentage
<i>Age</i>		
7-9 years	74	49.30
10-12 years	60	40.00
13-15 years	16	10.70
<i>Income</i>		
Upto 750/-	56	37.33
Rs.751-1500/-	68	45.33
Rs.1501-2250/-	22	14.70
Rs.2251/- and above	4	2.70
<i>Educational Standard</i>		
Illiterate	110	73.33
Upto 5 th	40	26.66
<i>Structure of Family</i>		
Nuclear	132	88.00
Joint	18	12.00

Dietary Pattern: The balanced diet is one, which contains different types of foods in such quantities and proportion that the need for calories, protein, minerals, vitamins and other nutrients is adequately met (Educational Planning Group, 1991: 72).

Table 2 indicates the balance diet at low cost for female children of different age group according to ICMR Nutrition Expert Groups (1968).

Expert committees of different countries examine the available information on nutrient requirements and the national food habits and

Table 2: Balanced diet at low cost for female children of different age groups (in years)

Food stuffs (in gm)	7-9	10-12	13-18
Cereals	250	320	350
Pulses	60	60	50
Milk and milk products	200	200	100
Vegetables	125	175	150
Fats and oil	30	35	40
Fruits	50	50	30
Meat and meat products	30	30	30
Sugar and jagery	50	50	30

Source: ICMR Nutrition Expert Group, 1968.

arrive at what is normally called recommended dietary allowance (RDA). RDA is the intake of nutrient derived from the diet, which keeps nearly all people in good health. It takes into account individual variation in nutrient needs and also availability of nutrients, which may vary from diet to diet (Gopalan et al., 2002).

It was observed from Table 3 that cereal intake of Oraon children varied from 189.8gm to 268.7gm. There is a definite trend observed that as age increases, the cereal intake also increases. Children of all the age group consume less cereal than the RDA. The pulses intake was found to be very meager from RDA. As age of the children increased, slight increase in pulses intake was observed. The mean intake of pulses of 7-9 years girls were found to be 2.7gm whereas RDA is 60 gm per day. In case of 10-12 years children, the mean pulses intake was found to be 2.67gm while their RDA is 60gm. The 13 years Oraon children were consuming only 5gm of pulses daily while their RDA is 50gm per day.

The mean intake of milk and milk products of tribal children of different age groups was found to be significantly less than the RDA. The average milk intake of Oraon children was found to be 0.33gm to 1.62gm among children of 7 to 9 years and 10 to 12 years of age respectively. No children above 12 years of age had taken milk or milk products in their diet.

The vegetable intake includes green leafy vegetables, roots and tubers and other vegetables. The mean intake of vegetables among Oraon children varied for 16.25gm to 36gm. No definite trend was observed between the age of children and vegetable consumption. As Table 3 reveals, vegetable consumption was also very poor among the tribal children although few

children were consuming fair amount of green leafy vegetables.

Likewise the average intake of fats and oil was also less compared to RDA. It varied from 1.25gm to 2.84gm among the children while their RDA is 30gm per day. The average intake of fats and oil in 10-12 year children were found to be 2.34gm. In case of 13 years of children fats and oil intake is 1.25gm while their RDA is 40gm per day.

The average meat and meat products intake among the Oraon girls varied from 4.05gm to 7.85gm among all the three age groups. Most of the children were consuming fish (dry or raw) but the quantity of consumption was found to be very less.

The average daily food intake of the tribal girls according to the monthly income is presented in Table 4. The average cereal intake of Oraon girls in the four income groups varied from 204.4gm to 250gm per day. The mean intake of cereals in low-income group was found to be 222.33gm per day, and as income increased cereal consumption decreased among the children belonging to the income group of Rs.751/- to Rs.1500/-. The mean cereal intake was found to be 204.42gm which is less compared to the low income group but in case of children belonging to the next higher income group of Rs.1501/- to Rs.2250/-, the average cereal intake increased to 250gm. This might be due to presence of a large number of older children in that group. As income increased further to Rs.2251/- and above, the average cereal consumption again decreased to 225gm per day.

It was observed from the table that with the increase in income the average intake of pulses increased. Among the girls from families having income up to Rs.750/-, the mean pulses

Table 3: Average daily food intake (in grams) of Oraon children in relation to their age

Age of children	Cereals	Pulses	Milk and milk products	Vegetables	Fats and oils	Fruits	Meat and meat products
7-9 years (N=74) RDA	189.87250	2.7060	1.62200	25.14125	2.8430	5.450	4.0530
10-12 (N=60) RDA	240320	2.6760	2.33200	36175	2.3435	6.6850	7.8530
13-15 (N=16) RDA	268.75350	550	-150	16.25300	1.2540	6.2530	530

Table 4: Average daily food intake (gm) of Oraon children in relation to their monthly income

Monthly family income	Cereals	Pulses	Milk and milk products	Vegetables	Fats and oils	Fruits	Meat and meat products
Upto 750/-[N=56]	222.33	2.15	-	24.29	2.32	5.36	6.42
751/- to 1500/-[N=68]	204.42	3.53	0.29	29.29	2.35	8.08	5.44
1501/- to 2250/- [N=22]	250	2.73	3.64	37.27	0.9	4.55	2.27
2251/- +[N=4]	225	5	10	35	2.5	-	-

consumption per day was found to be 2.15gm. The pulses consumption increased to 3.53gm per day as the income increased to Rs.751/- to Rs.1500/-. Further increase of income revealed decrease of pulses consumption to 2.7gm. But in case of children from families having income of Rs. 2251/- and above, the pulses intake was found to be 5gm per day.

Consumption pattern of vegetable increases with the increase in income. The average intake of vegetables among the Oraon girls were found to be varied from 24-29gm to 37.27gm per day. The mean intake of vegetables in the income group of Rs.750/- or less was found to be 24.29gm. The intake is 29.29gm and 37.27gm among the income group of Rs.751-1000/- and Rs.1501-Rs.2250/- respectively. Average intake decreases to 35gm among the high-income group (Rs.2251/-).

Among the tribal girls the average consumption of fats and oil is found to vary from 0.9gm to 2.5gm. Consumption of fats and oil is lowest among the income group of Rs.1501/- to Rs.2250/- and it is highest among the high-income group. No definite trend was observed with regard to the consumption of fats and oil.

The average fruits consumption among the tribal girls was found to be varied from 4.55gm to 8.08gm per day. Consumption of fruits was highest among the children from family income group of Rs.751/- to Rs.1500/- compared to others.

The mean consumption of meat and meat products among the tribal children were found to be decreasing with increase in income. This might be due to availability of cheap quality of non-vegetarian foods.

The mean intake of food of the Oraon girls in relation to their family structure is presented in Table 5. It was observed from the table that the structure of family also influences the mean intake of food among the tribal children. The average intake of milk and milk products, fats and oil was found to be more in case of nuclear families,

compared to joint family. These are expensive food items for the tribal and the consumption of cereals, pulses, vegetables, fruits and meat products was higher in joint families as compared to nuclear families. This might be due to low age, and large family size. Cereal consumption is remarkably more in children belonging to joint families, i.e. 10gm more.

Dietary intake of the respondent in relation to their education is depicted in Table 6. The mean intake of foods was influenced by the educational level of the children. The average cereal intake was found to be 215gm for illiterate Oraon children and 230 gm for children who were educated up to 5th standard. The mean intake of pulses, milk and milk products, vegetables, fats and oil was found to be more among Oraon girls who were educated up to 5th standard as compared to illiterates counterparts. Intake of fruits and meat products were slightly more among illiterates as compared to literates.

Rai and Rai (1992) also found that, calorie consumption was less than RDA among the tribes of Jabalpur and Mandla district of Madhya Pradesh. N.N. M.B. (1985-87) report and NIN study also reported inadequate protein and iron intake among the tribal girls. A few others have also observed that consumption of cereal and pulses was less compared to RDA among the tribal girls. Smita and Mathew (1988) reported inadequate intake of pulses, other vegetables, milk and milk products compared with RDA whereas consumption of fruits, nuts and flesh foods was negligible. Similar trends were also observed in our study.

SUMMARY AND CONCLUSION

After 56 years of independence India's children have little to celebrate. About 6.3 crores are still out of school, despite the constitutional directive urging all states to provide free and

Table 5: Average daily food intake (gm) of Oraon girl in relation to their family structure

Structure of family	Cereals	Pulses	Milk and milk products	Vegetables	Fats and oils	Fruits	Meat and meat products
Nuclear [N=132]	217.8	3.03	1.06	28.33	4.09	4.92	5.15
Joint/ Extended [N=18]	227.78	2.22	-	28.89	2.28	15.55	9.44

Table 6: Average daily intake of food (gm) of Oraon girls in relation to their education

Education of child	Cereals	Pulses	Milk and milk products	Vegetables	Fats and oils	Fruits	Meat and meat products
Illiterate [N=110]	215	2.72	1.27	28	1.72	5.9	5.81
Up to 5 th [N=40]	230	4.00	-	36.25	2	5	5.25

compulsory education for all children until they complete the age of 14 years.

The dietary intake among the tribal girls was found to be very poor in comparison to RDA. Rice was consumed as staple food and pulses consumption was found to be meagre. Milk intake was absent in majority of the cases. The vegetable intake was significantly less than RDA. But intake of green leafy vegetable was fairly good among the tribal female children. Fats and oil intake was also found to be very less than RDA. Seasonal fruit consumption was better. Though intake of meat and chicken was poor; consumption of snail, small fish, dry fish was observed to be better than any other food stuff. It was observed that the socio-economic variables like monthly income, structure of family, education have profound influence on the dietary intake of children.

Government has taken steps towards poverty elevation. But eradication of poverty has been an utopian idea. The blooming personalities of children who would be useful citizens of tomorrow cannot be allowed to decay. Therefore, there is an urgent need of enforcement of compulsory primary education to children and nutrition education to the parents and elderly. In the present study it was observed that food intake was not up to their requirement. In order to improve their nutritional social, educational and health status, the following measures are suggested:

- The parents should be educated about different programs meant for girl children and other programmes provided by the government.
- They should be made aware of various developmental programmes implemented by the state and central government for children and should be helped by health workers and social workers to make use of the facilities.
- Poverty elevation programme should be

implemented intensively. People should be made aware of the benefit of intensive agriculture, nutrition information and work culture among the people will go a long way for the health and nutrition of their children.

Compulsory education to tribal girls is highly essential.

REFERENCES

- Bennet, F.J. 1979. "Growth and Development", (p. 8) in D.B. Jelliffe's (ed.), *Child Health in Tropics*. Washington D.C.: Pan American Health Organisation.
- Bose, N.K. 1971. *Tribal Life in India*, New Delhi: National Book Trust.
- Gopal, Das, T. and S. Seshadri. 1987. *Nutrition Monitoring and Assessment*. Delhi: Oxford University Press.
- Gopalan, C. 1986. *Combating under Nutrition: Basic Issues and Practical Approaches*. New Delhi: NFI Special Publication.
- Gopalan, C., B.V. Ramasastri and S.C. Balasubramanian, 1994. *Nutritive Value of India Foods*, Hyderabad: NIN,ICMR.
- NNMB. Diet and Nutrition Survey of the Tribal in ITDP areas of 8 states 1985-1987.
- Pathak, K.B. and P.C. Saxena. 1979. "Size, Growth and Basic Composition of the Child Population", (pp. 29-51.) in K. Srinivasan, P.C. Saxena and Tara Kantikars (eds.), *Demographic and Socio Economic Aspects of the Child in India*. Bombay: Himalaya Publishing House.
- Rai, B.K. and G.Rai. 1992. "Food and Nutrients Consumption among Tribal of Jabalpur and Mandala District", (pp. 259-274) in P.D Tiwari and R.S. Tripathi (eds.): *Dimensions of Scheduled Tribes Development India*. New Delhi: Monohar.
- Singh, K.K., 1970. *Facets of Child Development*: New Delhi. NIPCCD.
- Smitha, S and S. Mathew, 1988. "Nutritional Status of Tribal Adolescents of Village Gogunda Rajasthan." *Ind. J. Nutr. Diet.*, 25: 281-287.
- Swaminathan, M. 1993. *Advanced Textbook of Food and Nutrition*, Bangalore: Bangalore Printing and Publishing Co. Ltd. V.1 and V.2.
- The Educational Planning Group. 1991. *Food Groups and their Nutritive Contribution to a Basic Dietary Pattern*. Delhi: Arya Publishing House.