



Research Paper

Consumption pattern of tribal households in Palghar district (M.S.)

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ABSTRACT : The socio-economic structure in tribal communities is markedly different from that of the non-tribal or advanced groups of people. Today, some individuals and families from tribal communities are found to be employed in good positions, but income of tribal population is very low and inadequate to meet their consumption needs. Paddy was the main *Kharif* crop in this district. Major quantities of food-items consumed were cereals. Consumption of cereals was higher than minimum requirement. While consumption of other food items like pulses, leafy vegetables, other vegetables, roots and tubers, fats and oils, milk and milk product, flesh foods and eggs, spices and sugar was lower than the recommended dietary allowances. The calorie was 84.19 per cent and protein was 98.55 per cent of the minimum allowance of calories and proteins recommended and fats were 0.13 per cent maximum allowance. Per day per adult average intake of calorie and protein was less than needed minimum. These mean that there was nutritional gap. This discrepancy in the daily diet of sample tribal households can be removed if they pay little more attention in consumption of food items such as pulses, vegetables, milk, fats and edible oil and fruits.

KEY WORDS : Consumption pattern, Food-items, Calories intake, Protein intake, Fat intake

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INTRODUCTION :

The tribal population inhabit in almost all parts of the world. India ranks second next to Africa with respect to tribal population in the world. The tribal population is concentrated mainly in the state of M.P., Orissa, Bihar and Maharashtra. The total population of Maharashtra, as per the 2011 census is 11,23,72,972 of this, 1,05,10,213 (9.35 %) are scheduled tribes. The scheduled tribes population of the state constitutes 5.1 per cent of the country's scheduled tribes population.

Agriculture is main source of employment for the

tribals, next to agriculture, other sources of employment sought through working as agricultural and non-agricultural labour, collection of minor forest produce, cottage industry, poultry, dairy, services construction of buildings, roads, bricks making and cutting and loading wood. The socio-economic structure in tribal communities is markedly different from that of the non-tribal or advanced groups of people. Today, some individuals and families from tribal communities are found to be employed in good positions, but income of tribal population is very low and inadequate to meet their consumption needs. Thus, the low level of income produced its twin effects

of mal-nourishment and under-nourishment which ultimately reduces the efficiency of the population.

Palghar district is located at *Konkan* region so Paddy, nagali, vari, pulses, kulthi and cowpea were grown in *Kharif* season, while in *Rabi* season, pulses, watermelon and vegetables are grown. Paddy was the main *Kharif* crop in this district. Major quantities of food-items consumed were cereals. Among the cereals, rice constitutes the major share in the diet. Quantities of various food-items such as pulses, nuts and oilseeds, leafy vegetables, other vegetables, roots and tubers, fruits, fats and oils, milk and milk products, flesh foods and eggs, spices and condiments and sugars consumed by sample tribal households.

Sar *et al.* (1992) studied consumption pattern of tribals in rural area of Thane district. They observed that the intake of almost all the food stuffs; except pulses, other vegetables and roots and tubers were inadequate among the tribals. At overall level, calories intake was inadequate, while protein intake was just adequate among the tribals of thane district. Per day per capita cost of diet of the tribals was Rs. 6.81 which was less than the cost of balanced diet (Rs.7.04.).

Bombale (1992) reported on consumption pattern of sample tribal households in Thane district, the calories intake was 1442 kcal which was much less than minimum required of 2800 kcal for male and 2200 kcal that for female. The overall deficit of calorie was 48.50 per cent in male labour and 34.45 per cent in female labour. In case of protein, there was 29.09 per cent deficit of protein in male labour and 13.33 per cent deficit of protein in female labour. All over, calories and protein deficiency is greater in males than that females.

Pathare (1996) observed that per capita calorie and protein consumption of sample tribal households in Thane district was 2,088 kcal and 52.86 g which is less than minimum required 2400 kcal and 55 g, respectively. The actual intake of calories and protein of an average person of sample tribal household was observed to be 87.00 per cent and 96.11 per cent of minimum allowance of calories and protein recommended.

Hossain (2011) concluded that consumption patterns of wealthy people (or upper class) in Rural Bangladesh are the same as or similar to those of their counterparts in developed countries. The poor (or lower class), who live mostly in rural areas, do not have the access to consumer markets that developed countries have. The percentage share of rural households' consumption

expenditures on non-food items rose from 25.28 per cent in 1973-74 to 41.46 per cent in 2005. But on the other hand, the percentage share of rural households' consumption expenditures on food dropped sharply from 74.72 per cent in 1973-74 to 58.54 per cent in 2005. Higher incomes, greater awareness of and access to medical facilities, greater accessibility to other consumer goods and services, and a stronger motivation to live a better life, among others, have contributed to this decrease in consumption expenditures on food. Bangladeshis now consume more clothing and footwear, but spend less due to greater efficiency in this sector.

Mor and Setia (2014) observed the significant differentials not only between the groups (rural vs. urban) but also within the group in Ambala district of Haryana. Low expenditure elasticity for cereals and high expenditure elasticity for other food items signifies a shifting food consumption pattern in both rural and urban areas as income increases. Education, income, occupation and location were significant determinants of consumption expenditure of the households. Average per capita monthly consumer expenditure was worked out to Rs.1,510 for rural sector and Rs. 2,321 for urban sector. Out of this Rs. 809.36 (53.6 %) was spent on food items and Rs. 700.64 (46.4 %) on non-food items in rural sector.

Objectives:

To study consumption pattern of tribal households:

MATERIALS AND METHODS :

The sampling method used in present study consisted of three stage sampling. Palghar district was selected purposively as percentage of tribal population is relatively more. Four tahsils from district and three villages from each tahsil were selected purposively as percentage of tribal population is relatively more. Thus, final sample was 120. This households grouped into four size class namely landless, small (0.01 to 1.0 ha), medium (1.01 to 2.0 ha) and large (2.01 and above) and Out of these 120 households, 22, 62, 30 and six, respectively.

The data were collected by survey method. The selected households were interviewed personally with the help of specially designed questionnaire. A simple tabular analysis was carried out with the help of statistical tools such as average, percentage, frequency distribution etc. The quantities of food items consumed were

converted into calories, protein and fats by multiplying the quantities consumed by the respective adult unit co-efficients (Gopalan *et al.*, 2012). These values are added overall for food items to get the total intake of calories, protein and fats by the households. Per capita figures for each household were obtained by dividing the total intake of households by the number of adult units in the households (family members were converted into adult units as per conversion co-efficients).

RESULTS AND DATA ANALYSIS :

The results obtained from the present investigation as well as relevant discussion have been summarized under following heads :

Per day per household food consumption:

It is observed from the Table 1 that major quantities of food-items consumed were cereals. Among the cereals, rice constitutes the major share in the diet. Total cereal consumption varied from 2.109 kg in landless class to 3.079 kg in large size class of tribal households. Quantities of various food-items such as pulses, nuts and oilseeds, leafy vegetables, other vegetables, roots and tubers, fruits, fats and oils, milk and milk products, flesh foods and eggs, spices and condiments and sugars consumed by sample tribal households were minimum in landless class and maximum in large size class. Total food-items consumption varied from 2.891 kg in landless to 4.524 kg in large size class.

Per day per adult food consumption:

It is observed from the Table 1 that per day per adult consumption of cereals, pulses increased from landless class to large size class group. The overall consumption of cereals was higher than minimum requirement.

While consumption of other food items like pulses, leafy vegetables, other vegetables, roots and tubers, fats and oils, milk and milk product, flesh foods and eggs, spices and sugar was lower than the recommended dietary allowances.

Per day per adult consumption of rice increased from 333 g in small size class to 355 g in large size class. At overall level consumption of cereal was 343 g and other cereal was 171 g. The consumption of cereals increased from 501 g in small size class to 529 g in large size class, while it was 514 g at overall level. Consumption

of pulses also increased as size of land holding increases was 20 g in small size class to 21.5 g in large size class. At overall level, consumption of pulses was 21 g which was less than recommended daily allowance (47 g). Total food items consumption was 687.0, 712.4, 739.8 and 777.5 g in landless, small, medium and large size class, respectively.

Per day per adult calorie intake:

It is seen from the Table 2 that calorie intake of different groups varied directly with size group. Total calorie intake was 2144, 2218, 2290 and 2403 kcal in landless, small, medium and large size class with overall average intake of 2263 calories. The adult unit per day calorie intake through all the food-items increased with increase in size of holding.

Rice is the staple food of people in tribals. Hence, it accounted for major intake of calories *i.e.* 1201 calories (53.07%), while total cereals and millets including rice constituted 1765 calories (77.99%). Pulses constituted 67 calories (2.96 %), leafy vegetables 11 calories (0.49 %) and other food-items mentioned in table. The calories intake was lower by 20.24 per cent in landless class, 17.49 per cent in small size class, 14.81 per cent in medium size class and 10.60 per cent in large size class as compared to recommended norms.

Per day per adult protein intake:

It is seen from the Table 3 that protein intake of different groups varied directly with size group.

Total protein intake was 52.1 g in landless class, 53.4 g in small size class, 54.9 g in medium size class and 57.1 g in large size class with overall average intake of 54.2 g. The adult unit per day protein intake through all the food-items increased with increase in size of holding. The major proportions of proteins in the diet of sample households were derived from cereals (75.46 %), pulses (7.39 %) and flesh foods and eggs (07.56 %).

Rice is the staple food of tribals. At overall level, it constituted major protein intake of 44.28 per cent (24.0 g). Protein intake from pulses accounted for 07.39 per cent (4.0 g). The protein intake from different food items was, nuts and oilseeds 0.74 per cent (0.40 g), leafy vegetables, 0.92 per cent (0.50 g) and other food-items mentioned in Table 3. The protein intake was lower by 5.27 per cent in landless class, 2.91 per cent in small size class, 0.18 per cent in medium size class, while in large size class, the protein intake was in excess (3.82 %) as

compared to recommended norms.

Per day per adult unit fats intake:

It is seen from the Table 3 that fat intake of different groups varied directly with size group. Total fat intake was 28.83 g in landless class, 29.84 g in small size class, 30.65 g in medium size class and 33.76 g in large size class with overall average intake of 31.04 g. The adult

unit per day fat intake through all the food-items increased with increase in size of holding. The major proportions of fat in the diet of sample households were derived from cereals (41.24 %), fats and edible oil (37.37 %), roots and tubers (4.83 %) and flesh foods and eggs (4.19 %).

At overall level, fat intake from cereals 41.24 per cent (12.8 g) and pulses accounted for 1.93 per cent (0.6 g). The fat intake from different food items was, nuts

Table 1: Per day per household and per day per adult food consumption

Sr. No.	Particulars	Landless		Small		Medium		Large		Overall		Recomm- ended *
		Per household (kg)	Per adult (g)	Per household (kg)	Per adult (g)	Per household (kg)	Per adult (g)	Per household (kg)	Per adult (g)	Per household (kg)	Per adult (g)	
1.	Rice	1.402	333	1.492	339	1.835	345	2.066	355	1.694	343	
		48.50	48.47	47.59	47.59	46.63	46.63	45.67	45.66	47.02	46.99	
2.	Other cereals	0.707	168	0.748	170	0.910	171	1.013	174	0.844	171	
		24.46	24.45	23.86	23.86	23.13	23.11	22.39	22.38	23.42	23.43	
	sub- total	2.109	501	2.240	509	2.745	516	3.079	529	2.538	514	513
3.	Pulses	0.084	20	0.090	20.5	0.111	20.9	0.125	21.5	0.102	21	47
		02.91	02.91	02.87	02.88	02.82	02.83	02.76	02.77	02.83	02.88	
4.	Leafy vegetable	0.076	18	0.086	19.5	0.112	21	0.137	23.5	0.101	20.5	50
		02.63	02.62	02.74	02.74	02.85	02.84	03.03	03.02	02.80	02.81	
5.	Roots and tubers	0.076	18	0.079	18	0.101	19	0.128	22	0.095	19.3	100
		02.63	02.62	02.52	02.53	02.57	02.57	02.83	02.83	02.64	02.64	
6.	Other vegetables	0.147	35	0.167	38	0.218	41	0.250	43	0.194	39.3	60
		05.08	05.09	05.33	05.33	05.54	05.54	05.53	05.53	05.38	05.38	
7.	Nuts and oilseeds	0.008	2	0.011	2.5	0.011	2	0.017	3	0.012	2.4	25
		00.28	00.29	00.35	00.35	00.28	00.27	00.38	00.39	00.33	00.33	
8.	Condiments and Spices	0.076	18	0.075	17	0.101	19	0.122	21	0.093	18.8	NR
		02.63	02.62	02.39	02.39	02.57	02.57	02.71	02.70	02.58	02.58	
9.	Fruits	0.076	18	0.086	19.5	0.114	21.5	0.140	24	0.103	20.8	100
		02.63	02.62	02.75	02.74	02.90	02.91	03.09	03.09	02.86	02.85	
10.	Meat, fish and egg	0.067	16	0.075	17	0.101	19	0.116	20	0.089	18	30
		02.32	02.33	02.39	02.39	02.57	02.57	02.56	02.57	02.47	02.47	
11.	Milk and milk products	0.029	7	0.035	7.9	0.045	8.4	0.055	9.5	0.041	8.2	150
		01.00	01.02	01.12	01.11	01.14	01.14	01.22	01.22	01.14	01.12	
12.	Fats and edible oil	0.050	12	0.055	12.5	0.069	13	0.087	15	0.065	13.1	30
		01.73	01.75	01.75	01.75	01.75	01.76	01.92	01.93	01.80	01.79	
13.	Sugar	0.093	22	0.136	31	0.207	39	0.268	46	0.170	34.5	40
		03.22	03.20	04.34	04.35	05.26	05.27	05.92	05.92	04.72	04.73	
	Total	2.891	687.0	3.135	712.4	3.935	739.8	4.524	777.5	3.603	729.9	
		100	100	100	100	100	100	100	100	100	100	

(Figures in the below line are percentages to total)

*Source: <http://www.fao.org> and Bulletin of the Nutrition Foundation of India, January 2013

Consumption pattern of tribal households

Sr. No.	Particulars	Landless	Small	Medium	Large	Overall
1.	Rice	1166 (54.38)	1187 (53.52)	1208 (52.75)	1243 (51.73)	1201 (53.07)
2.	Other cereals	555 (25.89)	561 (25.29)	565 (24.67)	575 (23.93)	564 (24.92)
	Sub- total	1721 (80.27)	1748 (78.81)	1773 (77.42)	1818 (75.66)	1765 (77.99)
3.	Pulses	65 (03.03)	67 (03.02)	68 (02.97)	70 (02.91)	67 (02.96)
4.	Leafy vegetable	09 (00.42)	10 (00.45)	11 (00.48)	12 (00.50)	11 (00.49)
5.	Roots and tubers	48 (02.24)	48 (02.16)	50 (02.18)	58 (02.41)	51 (02.25)
6.	Other vegetables	15 (00.70)	16 (00.72)	18 (00.79)	18 (00.75)	17 (00.75)
7.	Nuts and oilseeds	10 (00.47)	12 (00.54)	10 (00.45)	15 (00.62)	12 (00.53)
8.	Condiments and spices	37 (01.72)	35 (01.58)	39 (01.70)	43 (01.79)	38 (01.68)
9.	Fruits	13 (00.61)	15 (00.68)	16 (00.70)	18 (00.75)	15 (00.66)
10.	Meat, fish and egg	35 (01.63)	38 (01.71)	42 (01.83)	44 (01.83)	40 (01.77)
11.	Milk and milk products	08 (00.38)	09 (00.41)	09 (00.39)	11 (00.46)	09 (00.40)
12.	Fats and edible oil	104 (04.85)	108 (04.87)	113 (04.93)	130 (05.41)	114 (05.04)
13.	Sugar	79 (03.68)	112 (05.05)	141 (06.16)	166 (06.91)	124 (05.48)
	Total	2144 (100)	2218 (100)	2290 (100)	2403 (100)	2263 (100)

(Figures in the parentheses are percentages to total)

Sr. No.	Particulars	Landless		Small		Medium		Large		Overall	
		Protein	Fat	Protein	Fat	Protein	Fat	Protein	Fat	Protein	Fat
1.	Rice	23.3 (44.72)	9.5 (32.95)	23.7 (44.38)	9.7 (32.51)	24.2 (44.08)	9.9 (32.30)	24.9 (43.60)	10.1 (29.92)	24.0 (44.28)	9.8 (31.57)
2.	Other cereals	16.7 (32.05)	3.0 (10.41)	16.9 (31.65)	3.0 (10.05)	17.0 (30.97)	3.0 (09.79)	17.3 (30.30)	3.1 (09.18)	16.9 (31.18)	3.0 (09.66)
	Sub-total	40.0 (76.78)	12.5 (43.36)	40.6 (76.03)	12.7 (42.56)	41.2 (75.05)	12.9 (42.09)	42.2 (73.90)	13.2 (39.01)	40.9 (75.46)	12.8 (41.24)
3.	Pulses	3.8 (07.29)	0.5 (01.73)	3.9 (07.30)	0.5 (01.68)	4.0 (07.29)	0.6 (01.96)	4.1 (07.18)	0.6 (01.80)	4.0 (07.39)	0.6 (01.93)
4.	Leafy vegetable	0.4 (00.77)	0.1 (00.35)	0.5 (00.94)	0.1 (00.34)	0.5 (00.91)	0.2 (00.65)	0.6 (01.05)	0.2 (00.60)	0.5 (00.92)	0.2 (00.64)
5.	Roots and tubers	1.6 (03.07)	1.4 (04.86)	1.6 (03.00)	1.4 (04.69)	1.7 (03.10)	1.4 (04.57)	1.9 (03.33)	1.7 (05.06)	1.7 (03.14)	1.5 (04.83)
6.	Other vegetables	0.5 (00.96)	0.1 (00.35)	0.6 (01.12)	0.1 (00.34)	0.6 (01.09)	0.1 (00.33)	0.7 (01.23)	0.1 (00.30)	0.6 (01.11)	0.1 (00.32)
7.	Nuts and oilseeds	0.4 (00.76)	0.8 (02.77)	0.4 (00.75)	1.0 (03.35)	0.4 (00.73)	0.8 (02.61)	0.5 (00.88)	1.2 (03.55)	0.4 (00.74)	1.0 (03.22)
8.	Condiments and spices	1.3 (02.50)	1.1 (03.82)	1.3 (02.43)	1.1 (03.69)	1.4 (02.55)	1.2 (03.92)	1.6 (02.80)	1.3 (03.86)	1.4 (02.58)	1.2 (03.87)
9.	Fruits	0.1 (00.19)	0.1 (00.35)	0.1 (00.19)	0.1 (00.34)	0.2 (00.36)	0.1 (00.33)	0.2 (00.35)	0.1 (00.30)	0.1 (00.18)	0.1 (00.32)
10.	Meat, fish and egg	3.6 (06.91)	1.1 (03.82)	3.9 (07.30)	1.2 (04.02)	4.3 (07.83)	1.3 (04.24)	4.6 (08.06)	1.4 (04.16)	4.1 (07.56)	1.3 (04.19)
11.	Milk and milk products	0.3 (00.58)	0.5 (01.73)	0.4 (0.75)	0.6 (02.01)	0.4 (00.73)	0.6 (01.96)	0.5 (00.88)	0.7 (02.07)	0.4 (00.74)	0.6 (01.93)
12.	Fats and edible oil	00 (00.00)	10.6 (36.77)	00 (00.00)	11.0 (36.86)	00 (00.00)	11.4 (37.19)	00 (00.00)	13.2 (39.11)	00 (00.00)	11.6 (37.37)
13.	Sugar	0.1 (00.19)	0.03 (00.10)	0.1 (0.19)	0.04 (0.13)	0.2 (00.36)	0.05 (00.16)	0.2 (00.35)	0.06 (00.18)	0.1 (00.18)	0.04 (0.13)
	Total	52.1 (100)	28.83 (100)	53.4 (100)	29.84 (100)	54.9 (100)	30.65 (100)	57.1 (100)	33.76 (100)	54.2 (100)	31.04 (100)

(Figures in the parentheses are percentages to total)

and oilseeds 3.22 per cent (1 g), leafy vegetables, 0.64 per cent (0.20 g) and other food-items mentioned in Table 3. The fat intake was lower by 3.90 per cent in landless class, 0.53 per cent in small size class, while in medium size class and large size class, the fat intake was in excess (2.17 %) and (12.53 %) as compared to recommended norms, respectively.

Nutritional gap:

Per day per adult estimated nutritional gap in the consumption of sample tribal households is given in Table 4. The actual intake of calorie, protein and fat of an average person of sample tribal household was observed to be 84.19 per cent and 98.55 per cent of the minimum allowance of calories and proteins recommended and fats were 0.13 per cent maximum allowance. Per day per adult average intake of calorie and protein was less than needed minimum. These mean that there was nutritional gap. This discrepancy in the daily diet of sample tribal households can be removed if they pay little more attention in consumption of food items such as milk, fats and edible oil and fruits.

Per day per adult calorie consumption of sample tribal households in Palghar was 2263 calories which is less than the minimum calorie requirement (2688 calories*), per day per adult protein intake of sample tribal households was 54.20 g which is also less than the minimum protein requirement of (55 g*) per adult unit

and per day per adult fat intake of sample tribal households was 30.04 g which is slightly higher than the minimum protein requirement of (30 g*) per adult unit.

Conclusion:

– The consumption of cereals was at par with recommended daily allowance but, consumption of other food items like pulses, vegetables, roots and tubers, fats and oils, milk and milk product, flesh foods and eggs, spices and sugar was less than the recommended dietary allowances.

– Average calorie intake was 2263 kcal of sample households was less than recommended intake level was 2688 kcal. The calories deficiency was more serious particularly in landless, small and medium size class, deficiency of calories was more than Protein deficiency. The protein intake was 54.2 g was less than recommended intake level was 55 g. while protein intake deficiency was more serious in landless class. There was prominent nutritional gap between per capita recommended and actual intake nutrients.

– Average fats intake of sample households was 30.04 g it was slightly higher than recommended intake level was 30 g. Fats intake was more serious in landless size class.

– Consumption of cereals alone provided 77.99 and 40.90 per cent of the total intake of calories and protein, respectively. The consumption of fats and edible oil alone

Table 4: Per day per adult estimated nutritional gap

Sr. No.	Particulars	Landless	Small	Medium	Large	Overall
1.	Calories (Kcal)					
	Recommended*	2688	2688	2688	2688	2688
	Consumption	2144 (79.76)	2218 (82.51)	2290 (85.19)	2403 (89.40)	2263 (84.19)
	Gap (-) or excess (+) of actual intake to recommended	-544 (20.24)	-470 (17.49)	-398 (14.81)	-285 (10.60)	-425 (15.81)
2.	Protein (g)					
	Recommended*	55	55	55	55	55
	Actual intake	52.1 (94.73)	53.4 (97.09)	54.9 (99.82)	57.1 (103.82)	54.2 (98.55)
	Gap (-) or excess (+) of actual intake to recommended	-2.9 (05.27)	-1.6 (02.91)	-0.1 (00.18)	+2.1 (03.82)	-0.8 (01.45)
3.	Fat (g)					
	Recommended*	30	30	30	30	30
	Actual intake	28.83 (96.10)	29.84 (99.47)	30.65 (102.17)	33.76 (112.53)	30.04 (100.13)
	Per cent gap (-) or excess (+) of actual intake to recommended	-1.17 (03.90)	-0.16 (00.53)	+0.65 (02.17)	+3.76 (12.53)	+0.04 (0.13)

(* Recommended dietary allowance for Indians- ICMR, 2012)

provided 37.37 per cent fats.

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9th Year