

Nutritional Status of the Tribal Population in the Satpura Region of Madhya Pradesh

S. R. Chaudhari

Abstract

Sufficient and balanced amount of nutrition is essential for attaining normal growth, development and maintenance of health throughout life. However, it is not sure that all persons get sufficient intake of all nutrients. In some groups especially among the poor, nutrients are quite deficient, while in wealthy people nutritional intake seems to be much higher than requirement. The tribals region of Western Satpura in Madhya Pradesh is an economically backward region. Tribals do not get food in sufficient quantity and quality. Therefore, nutritional deficiency is a major problem among these people. In this paper an attempt is made to measure the nutritional deficiency among the tribals.

Introduction

Deficiency status is one of the serious problems in the tribal areas. This adversely affects the health of the tribal population and makes them more susceptible to morbidity and mortality due to infectious diseases. In the present paper, an attempt is made to assess the nutritional status of the tribal population from the western part of Satpura region in Madhya Pradesh. This study forms the subject matter of the Geography of Health and Nutrition.

Study Region

The Western Satpura region in Madhya Pradesh stretches from the Burhanpur-Khandwa gap in the east to the eastern boundary of Gujarat in the west. The Nimrod valley in the north and the northern boundary of Maharashtra in the south, bound it. It lies in the southwest corner of Madhya Pradesh.

It covers the southern parts of Khargone and Barwani districts of Madhya Pradesh.

The study region lies between 21023' N and 22002' N latitudes and 73045' E and 6010' E longitudes. The total area of the region is about 4000 sq.km.; and according to the 1991 Census the total population of this region was about 8,10,000. Out of the total population more than 75 percent people are tribals.

The Western Satpura region of Madhya Pradesh stands out as a representative region for investigating the nutritional status in the tribal areas of the country.

Methodology

For measuring the nutritional deficiency, an exhaustive and intensive dietary survey of these people was conducted. With the help of questionnaires, detailed household information about the type and amount

(weight) of foodstuffs usually consumed by the tribals was obtained. At least 5 families from each P. H. C. were interviewed. The nutritional status of the tribal population was assessed with reference to the following dietary constituents.

- | | |
|------------------|---------------|
| 1) Proteins | 2) Fats |
| 3) Carbohydrates | 4) Calcium |
| 5) Iron | 6) Iodine |
| 7) Vitamin A | 8) Vitamin B |
| 9) Vitamin B+ | 10) Vitamin C |
| 11) Ribolavin. | 12) Niacin |

Per head daily total amount of every constituent obtained from various food items was calculated with the help of required standard unit, decided by the National Institute of Nutrition, Hyderabad. The actual total intake of dietary constituent consumed

by a person was compared with the standard units required. From this comparison, the level of deficiency or otherwise of a particular constituent was determined in terms of percentage change. The values thus obtained for various tehsils within the study area are given in the tables 1 and 2.

Nutritional Status of the Tribal Population

In the economically backward region like the Western Satpura region, locally and cheaply available cereals and pulses forms the major sources of dietary protein intake.

Table 1 indicates that the region under study is not deficient so far as the proteins are concerned. Jowar (sorghum), maize and pulses are the staple food items of the tribals in which rich protein constituents are available. Overall 19.54 % proteins are in excess in the diet of the tribal population.

Table 1
Proteins, Fats, Carbohydrates and Minerals

	Tehsils	Proteins		Fats		Carbohydrates		Calcium		Iron	
		68		60		605		450		28	
		A	%	A	%	A	%	A	%	A	%
1.	Pansemal	87.3	28.38	27.32	-54.47	513.78	-15.08	170.39	-62.14	17.29	-38.25
2.	Rajpur	134.76	98.17	38.48	-35.87	661.41	15.08	158.19	-64.85	18.91	-32.47
3.	Segaon	105.83	55.63	35.52	-40.8	533.2	-11.87	161.81	-64.05	18.21	-34.97
4.	Bhagwanpura	100.41	47.66	35.14	-41.44	521.29	-13.84	260.7	-42.07	20.54	-26.65
5.	Barwani	78.22	15.02	25.6	-57.19	415.65	-31.3	118.36	-73.7	21.05	-24.83
6.	Khargone	82.95	21.98	27.75	-53.75	334.66	-44.69	121.44	-73.02	14.84	-49
7.	Jhirnya	71.31	4.86	21.51	-64.15	335.22	-44.6	98.24	-78.17	11.66	-58.36
8.	Bhikangaon	56.64	-16.71	10.19	-83.02	343.47	-43.23	158.61	-64.76	10.96	-60.86
9.	Sendhwa	70.83	4.16	29.22	-51.3	430.23	-28.89	160.72	-64.29	16.25	-41.97
	*	81.29	19.54	27.86	-53.57	454.32	-24.91	156.49	-65.23	16.63	-40.61

Fats are deficient all over the region. As the deficiency of fat does not directly result in any disease, nobody was reported to be suffering from diseases caused by the deficiency of fat. However, it can aggravate various deficiency diseases and hence it is necessary to have a good assessment of fat deficiency. Almost all the tahsils have more than 50% deficiency of fat. This is mainly because the tribal people consume very little amount of fatty foods like edible oil, groundnut, coconut and milk.

So far as the carbohydrates are concerned it can be noticed from the table that the actual intake of carbohydrates is deficient throughout the region under study. The regional deficiency in carbohydrates in terms of the percentage is - 24.91. It is more pronounced in the eastern tahsils like Bhikangaon, Jhirnya and Khargone, where it is more than 40%.

Mineral Deficiency

In the Western Satpura region, mineral deficiency is a crucial problem. Especially calcium, iron and iodine are deficient in the population of this region.

Calcium Deficiency

Calcium is a major mineral element of the body. About 99% of the calcium in the body is found in the bones.

The best natural source of calcium is milk. Green leafy vegetables, fish, fruits, cereals, betel leaves and drinking water are other sources of calcium. The consumption of milk, green leafy vegetables, fruits and fish is not often and in sufficient quantities, therefore, the diet of people is deficient in calcium.

Iron Deficiency

Iron is of great importance in human nutrition. The body of an adult contains 3-4 grams of iron and 75 % of this amount is found in the blood. The tribal people in the Western Satpura region do not get sufficient amount of iron from their diet. So they are usually iron deficient people. Iron deficiency results in anaemia.

Iodine Deficiency

Iodine is an important trace element. It is required for the synthesis of the thyroid hormones. The adult body contains about 50 mg. of iodine.

The best sources of iodine are seafoods viz., sea fish and sea salt; and vegetables grown on iodine rich soils. Sea foods are out of reach of these people due to their inaccessible locations. Due to excessive deforestation, the rate of soil erosion is high, as a result trace element - iodine - in soil is washed away. The crops grown in such iodine deficient soils are also remained devoid of iodine. So in chemical composition of the crops grown in these soils iodine is absent. Consequently in the region under study iodine deficiency is also an aggravated problem among the tribals.

Vitamin Deficiencies

Vitamins are complex chemical substances required by the body in very small amounts. However, deficiency of any particular vitamin leads to specific deficiency disease. In the region under study vitamins like "A" (Retinol), vitamin "D", are deficient. While vitamins like thiamine, riboflavin and niacin are found surplus in the diet of tribal people.

Table 2

Actual Intake and Required Levels of Vitamins

Tehsils	Riboflavin		Niacin		Vitamin 'C'		Vitamin 'A'		Vitamin 'D'		Vitamin 'B1'	
	A	%	A	%	A	%	A	%	A	%	A	%
	1.4		12.6		49		750		3.5		1.3	
1.	4.062	190.24	18.25	44.9	64.03	30.67	412.58	-44.99	0.208	-94.06	2.29	76.15
2.	5.91	322.14	32.58	158.64	95.61	95.12	694.77	-7.37	1.679	-52.03	3.9	200
3.	4.18	198.57	23.27	84.68	89.61	82.22	874.31	16.57	2.23	-62.71	2.43	86.52
4.	3.236	131.14	23.38	85.55	133.64	172.73	758.08	1.07	1.51	-56.86	3.56	173.84
5.	2.73	95	17.18	36.38	58.02	18.4	515.46	-31.28	1.54	-56	3.41	162.3
6.	2.02	44.28	18.6	47.67	55.83	13.93	586.28	21.83	1.806	-48.4	1.92	47.69
7.	3.32	137.14	14.27	13.25	42.97	-12.31	313.58	-58.19	0.86	-57.43	1.82	40
8.	2.18	55.71	17.81	41.34	40.18	-18	299.88	-60.02	0.006	-99.83	1.91	46.92
9.	2.36	68.57	18.52	46.98	45.19	7.78	517.26	-77.72	0.78	-77.72	1.9	46.15
	3.33	138.01	17.83	41.5	66.08	34.85	552.46	-26.34	1.18	-66.29	2.57	97.69

* Regional Averages

A = Actual Intake

$$\% = \left[\frac{(\text{Required levels} - \text{actual intakes})}{\text{required level}} \right] * 100$$

Vitamin "A"- Due to poverty, the tribals are not able to afford to purchase expensive food items like liver, eggs, butter, cheese, milk, fish, leafy vegetables etc. This results in overall "A" vitamin deficiency among the tribal people in the study region.

Table 2 shows that except for Segoa and Bhagwapura tehsils, which have surplus intake of vitamin "A", all other tehsils show negative percentage of vitamin "A". The deficiency varies from 7.17% in Rajpur tehsil to 60.02% in Bhikangaon tehsil. Vitamin "A" deficiency most commonly affects the eyes. Night blindness and Xerophthalmia are the prominent vitamin "A" deficiency diseases.

Vitamin "D" occurs in many forms, but the important one from the standpoint of

human nutrition is vitamin D3. Vitamin D3 occurs in nature in animal fats and fish liver oils. Vitamin "D" is required for the formation of healthy bones and teeth. Vitamin "D" is available both from sunlight and from foods. It is very clear from the given table that almost all tehsils are deficient in vitamin "D", Deficiency of vitamin "D" leads to rickets in children and osteomalacia in adults.

Thiamine or Vitamin "B1"

Per head daily intake of thiamine is more than required in all the tehsils. The positive percentage change ranges from 40 in Jhirmya to 200% in Rajpur, Segoa, Bhagwanpura, Khargone and Pansemal tehsils have higher proportion of protein contents.

Riboflavin

Considering the standard requirement of riboflavin, i.e. 1.40 per 100 grams, it becomes clear that all over the region the amount of riboflavin is more than the required standard. It is +138 % in the region.

Niacin

It seems from table 5.8 that there is no deficiency of niacin in per head consumption of food by the tribals.

Vitamin "C"

The eastern part of the study region has deficiency of vitamin "C", while it is increasing towards the west. Bhagwanpura shows the highest percentage increase i.e. +172.73 %

Vitamin "C" content is plentiful in fruits like Amla and Guava, Mango, Papaya, Sitaphal. These fruits are grown in the study area. The tribals can obtain them very easily from the forest and from their farms. Hence vitamin "C" deficiency is not such a serious problem in the western part. In the east, on the other hand fruit bearing trees are disappearing due to illicit felling of the trees. Its' consequent effects are felt in the deficiency of vitamin "C".

Conclusion

It seems from this discussion that there is an overall deficiency in nutrition. This nutritional deficiency leads to various deficiency diseases in the region

- Cereals and pulses are the major sources of dietary proteins therefore; the region is surplus in proteins supply.
- The entire study region suffers from deficiency of carbohydrates.
- The diet of tribal population is deficient in Vitamin A.
- Similarly these people are also deficient in vitamin D; thiamine, calcium, iron and iodine.
- However, they are surplus in riboflavin, niacin and vitamin C.

Acknowledgement

The present paper relates to the work carried out by the author under the Minor Research Project sanctioned by the U.G.C. The financial support provided by UGC is gratefully acknowledged.

Dr. S. R. Chaudhari
Department of Geography
Principal, Pratap College,
Amalner (M. S.)