

## Nutrition and Nutritional Deficiency Disease: A Case Study

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### Abstract

The purpose of the studied was to see nutrition and nutritional deficiency diseases of the rural population of the selected villages of the area Manipur (India). The aim is to assess the real nutritional value of the diets of the villagers and the diseases from which they suffer owing to nutritional deficiency. The deficiency diseases has been studied in two groups-firstly, the deficiency diseases which most often occur due to prolonged deficiency of nutrients in the diet; secondly, the disease which are basically produced by deficiency and are accentuated due to the deficiency.

“Nutrition” is a science devoting to the determination of the requirements of the body for food constituents both qualitatively and quantitatively and to the selection of food in kinds and in quantity to meet these requirements [1]. The study tries to find out the quality of food the villagers are taking and the nutritional value of the food. The subjects of the study were from five select villages of Manipur state (India). It has been observed that the subjects take poor quality of food which are lacking in nutritional value. The lack of nutrition in food results in several deficiency diseases.

The result reveals that diet of about 50 percent of the population of the selected villages under study is deficient in protein, while the actual intake of fat, calcium, Vitamin A, B and C and Carbohydrates is inadequate. However, the consumption of iron, niacin and Vitamin B, is satisfactory to a certain extent. The morbidity in the sample villages are due to the chronic malnutrition and inadequate diets and backwardness and ignorance are also responsible to a large extent-Various diseases like night-blindness, scurvy, scabies, dental cavities, bad growth of bones and teeth, dyspepsia, diabetes and pellagra are common among male population of the villages. Among the children stunted growth, scabies, Keratomileusis and night blindness are commonly seen. Due to the existing mal or under-nutrition a number of diseases were found in the villages of the study area.

**Keywords:** *Nutrition; Deficiency; Disease*

Food in India is extremely poor by world standard and food is a major bottleneck to economic development of the country. This problem can only be solved through increased output of food grains both in surplus marginal negative areas of food production [2].

So, our studied targeted on land of Manipur (India). Because Manipur is a small state which came into existence in 1972. It is surrounded by the states of Nagaland, Manipur, Mizoram, Assam and a country Myanmar. It's a small state which has reached in natural resources with high fertile land but people of Manipur are isolated who feel deprived of any opportunities, perceive denial of rights and face many problem due to poverty. So, the only source of income for the villagers is on the agricultural product. Villagers are not getting any opportunity and the living condition is worse [3]. Land is the only main source which provides nutrition directly or indirectly to the people. Nutrition is a science devoting to the determination of the requirements of the body for food constituents both qualitatively and quantitatively [1]. And also a biological process that is more fundamental than sex (Richard, A.I., 32). Food serves as a fuel that drive the human machine for body growth, etc [4].

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The correlation of under-nutrition and malnutrition diseases may help in planning a balanced land-use and balanced diet for the people. Under-nutrition and malnutrition as well as deficiency diseases weaken the productive efficiency of the cultivators and result in poor agriculture yield and thus a vicious circle of poor agriculture and poor health continues [5]. The purpose of the study is to assessed firstly, the nutrition and nutritional deficiency diseases of the rural population of the selected villages from different areas like Oinam, Porompat, Lilong, Thawal and Poarayanbi. Secondly, to assess the real nutritional value of the diets of the villagers and the diseases from which they suffer from nutritional deficiency.

A number of valuable studies have been conducted in these disciplines during the last two decades keeping in view the increasing pressure of population on agricultural land and declining per head per day share in agricultural output [3]. But none so far has studied the lack of availability of nutrients [6].

The deficiency diseases has been studied in two groups-firstly, the deficiency diseases which most often occur due to prolonged deficiency of nutrients in the diet; secondly, the disease which are basically produced by deficiency and are accentuated due to the deficiency.

To procure adequate and reliable data of dietary habits of each person in the village, a field investigation of the village economy was carried out. The inhabitants of the selected villages were classified into three economic groups on the basis of agricultural produce in a household viz well-off, medium and poor in each village. It is obvious from the table 1 that where percentage of population in well-off, economic group is high, the total caloric intake per head per day is also high, which is also related to the good quality of the soil of the village. In the same way, the high percentage of population exist in medium and poor economic groups, the per head caloric intake is lower than the well-off economic group and the soil is also inferior, From each economic group a few sample households wore selected and daily dietary survey was made in three seasons in a year, i.e. autumn, winter and summer, because seasonal agricultural produce exercise great influence on dietary habits of the villagers.

Selected villages	Total Population (1991)	Percentage of Population under Calories Each Economic Group			Calories Intake
		Well-off	Medium or Middlemen	Poor	
1. Oienam	571	27.90	48.30	23.80	2304.75
2. Porompate	253	26.71	46.91	26.38	2247.07
3. Thawal	1,439	10.01	30.71	59.82	1046.52
4. Lilong	4,901	28.91	41.11	29.98	1792.70
5. Pourayanbi	301	17.03	44.37	38.60	1961.88

**Table 1:** Economic Groups in Each Selected Village and its Percentage to the Village Population in Relation to Daily Caloric Intake per head **Source:** Field-work, V. L. W., and self-calculation.

The “Food Balance Sheet Method” is not suitable and up-to-the mark for the accurate assessment of the daily dietary intake data per head. Therefore, weighment method, which is based on the daily dietary survey, has been considered for the accurate result of the nutritive elements and the deficiency diseases. As it is evident from the table 2 that there exists a marked gap between these two methods and the nutrients available by the weighment method indicate the actual intake and area, therefore, presents a more realistic picture than the “Food Balance Sheet Method”.

Villages	Calories		Protein(Gram)		Fat (Gram)		Carbohydrate (Gram)		Calcium (mg)		Iron (mg)	
	FBSM	WM	FBSM	WM	FBSM	WM	FBSM	WM	FBSM	WM	FBSM	WM
Oinam	2304.75	2611.11	77.60	88.70	9.61	44.03	415.40	458.40	274.22	610.40	45.10	60.00
Porompat	2247.07	2627.10	45.70	63.10	6.3	48.40	276.31	304.76	304.10	886.70	76.07	80.07
Thawal	1046.52	1239.40	35.11	44.78	5.11	16.00	171.91	229.71	296.20	600.20	20.70	30.01
Lolong	1792.70	1897.70	57.80	86.70	10.81	50.01	440.60	481.01	190.30	401.80	51.07	53.90
Pouragengbi	1961.88	2110.71	61.21	68.73	11.30	35.4	376.01	400.50	240.30	480.80	35.50	47.00

**Table 2:** A Comparative analysis of the results available from food balance sheet and weighment method of the villages under study: 2000. FBSM: Food Balance Sheet Method; WM: Weighment Method SOURCE = Field-work data procurement and its processing.

Nutritional deficiency diseases are related to the deficiency of the nutrients in the body. Our nutrients need of the body is dynamic and in time they must be replaced in varying degree by the nutrients supplied by the food [4]. The daily food which we consume always serve many purpose - (A) as a fuel that drive the human machine; (B) it is required for body building, the growth, the repair or renewal of the actual body including reproduction and (C) to preserve a proper medium in which biochemical process of the body can take place [4]. When the food ingested fails to sub serve these functions adequately the architecture of the living tissues becomes imperfect, transformation of energy in the body becomes deranged and metabolic process disordered with consequent abnormalities occurring in the body. The failure of food to sub serve these functions may be brought about in a number of ways - (i) it may be the results of inadequate intake of essential nutrients due to lack of food, (ii) it may develop as a result of failure to absorb normally the essential nutrients supplied by the diet in adequate quantity [7].

In the same way, nutritional deficiency diseases may also be brought about by impaired digestions excessive excretion, reduced intake, abnormal intermediate metabolism, reduced storage facilities and increased biological demand.

As there exists heavy pressure of population and low yield of food crops per hectare, the availability of nutrition is quite inadequate [5]. Religious and cultural taboos, ignorance about the knowledge of nutritional science in the area under study is also responsible for malnutrition to some extent. As a result of malnutrition, several diseases occur. It has been observed that most of the diseases like rickets, pellagra and osteomalacia result from the lack of multiple nutrients rather than the deficiency of a single nutrient.

The villagers are predominantly vegetarian and their main diet consists of cereals, pulses and starchy roots and sugar. Cereals contribute substantially to the energy value and to the protein content of the diet compared to the starchy roots and sugar. Although the starchy roots have low protein content they constitute valuable sources of vitamins and minerals and sugar, with energy in readily assimilable form. But they have no nutritional appeal.

### Living conditions and diseases

The general living conditions and the residential character of the villagers, e. g. the nasty smells from the cow-dung and urine close to the residential compounds and worse drainage systems which is found in almost all the villages, are also responsible for certain other diseases. Several villagers are also affected by many diseases which are due to non-nutritional causes, but they are increased by nutritional deficiencies [2]. Thus unhygienic conditions and other causes interplay with nutritional deficiencies in the growth and development of many other diseases. The survey reveals that the diet of about 50 percent of the population of the selected villages under study is deficient in protein, while the actual intake of fat, calcium, Vitamin A, B and C and Carbohydrates is inadequate. However, the consumption of iron, niacin and Vitamin B, is satisfactory to a certain extent. Such inadequate diets are reflected in wide prevalence of malnutrition. The morbidity in the sample villages are due to the chronic malnutrition and inadequate diets, backwardness, and ignorance are responsible largely. The following table 3 revealed that the morbidity varies from 9.6 percent to 16.3 percent in the villages, while the mortality varies from 0.9 to 23.4 percentage. (The term 'mortality' refers to the bare outcome of the final serious breakdown from a disease while 'morbidity' is slowly, progressive and takes time to develop symptoms).

Villages	Caloric intake per head per day	Percentage of Morbidity to the total population	Percentage of Mortality to the total patients
OINAM	2304,75	10.7	0.9
POROMPAT	2247.07	9.6	18.8
THAWAL	1046.52	16.3	23.4
LILONG	1792.70	13.2	15.3
PURAYENGBI	1961.88	16.2	13.3

**Table 3**

*Source: Field-work and self-deduction*

Caloric intake is not the only measure to determine the conditions of good health. It is obvious from the table 3 that villages of enough caloric intake per day also have malnutrition and are not free from deficiency diseases. For instance the villages of Oienam and Porompat which show the highest caloric supply of food have 10.7 and 96 percent of morbidity to the total population of the villages, who are suffering from deficiencies, and 0.9 to 15.8 percent of the population died of these diseases.” Diets of malnutrition can provide enough caloric supply of food but the diets of poor nutritional quality are directly responsible for the occurrence of specific deficiency diseases”.

**Conclusion**

The results of the present study revealed that to some extent morbidity is controlled by the seasonal variations and weather conditions. Intestinal infection are mostly seen in hot and rainy season, disturbed digestion in rainy season, eye diseases in the hot season and the secondary anemia particularly in the hot dry season or hot dry areas adversely affect the health. It is due to seasonal effect that the diseases of gastritis, anorexia, constipation, indefinite stomach distress, colitis and flatulence do not exist in winter season. In other words, the stomach and the intestines have better resistance to diseases in winter season than in the rest of the year. The scabies re-opening old wounds and inflammation occur mostly in the rainy season [7].

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