

# Impact of Health and Nutrition Among the Birhor Tribes of Dharamjaigarh Block, Chhattisgarh

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**Abstract:** The Birhor Tribes are a particularly vulnerable tribal group in Chhattisgarh because they lack access to resources and development benefits, including infrastructure, education, and basic subsistence means. They are perceived as being less fortunate than other communities in terms of having access to resources and other rights. The article bases its conclusions on both primary and secondary data sources. The paper examines the health and nutrition status among Birhor tribes in Dharamjaigarh Block, as well as the vulnerabilities and inherent complexities of their livelihoods. The article's main conclusion is that the Birhor people are gradually transitioning from their traditional hunting-and-gathering lifestyle to a settled one. Like many other Indian indigenous communities, the Birhor tribes struggle with several issues, such as marginalisation, a lack of access to essential services like healthcare and education, and restricted economic prospects. Some of the main issues these groups face include defending their rights, preserving their culture, and enhancing their general quality of life. In the study area, they are now accepting the new sociocultural ways of life. The human body needs proper nutrition to live a healthy and active life. Due to all these, one suffers from many types of diseases; not only this, the condition of severe malnutrition leads to the death of such a person.

**Keywords:** Livelihoods, Vulnerable People, Birhor, PVTG, Health and Nutrition.

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## I. INTRODUCTION

The Birhor tribe in Chhattisgarh is one of the primitive tribes living in the Dharamjaigarh Block. The word Birhor is derived from the union of two Mundari words, Bir (forest) and Hor (man), meaning "man of the forest". The origin of the Birhor tribe is believed to be from the Kolarian group. The Birhor tribes live outside the village, by rivers, streams, hills, mountains, and caves, making grass-thatched huts (Tada). The Birhor tribe has been divided into two groups – Uthlu or Muliya (those who live a nomadic life) and Jaghi or Thania (those who live a sedentary life). The main deity is the sun god, Budhi Mai. Ancestors are worshipped, and Mountains and trees are revered. Their main work is hunting, collecting medicinal plants, making rope from the bark of a Moline tree, selling wood by selling bass, and living their life by eating kanki-koda and Mahua.

One of India's indigenous tribal groups, the Birhor, is primarily found in the states of Chhattisgarh, Jharkhand, Bihar, and Odisha. A sizable number of Birhor tribes reside in the Dharamjaigarh Block of northern Chhattisgarh. The Birhor tribes have a distinctive cultural identity and way of life. They have historically been a nomadic group that has

survived through hunting, gathering, and limited agriculture while residing in forested areas. However, several Birhor tribes have recently established permanent or semi-permanent settlements as a result of modernisation and governmental efforts. The Austro-Asiatic language family includes the language spoken by the Birhor people. However, due to increasing interaction with other tribes, many Birhor people today also speak local dialects or regional languages such as Hindi. In the past, the Birhor tribes inhabited transient structures built of leaves, branches, and other organic materials. However, some of them may now reside in more permanent homes made of mud, thatch, or other locally available materials, as they have shifted to a more established existence.

The Birhor tribes historically lived mainly as hunters and gatherers, depending on the forest for their food. Some people have switched to small-scale agriculture, day labour, or forest-based activities such as collecting non-timber forest products as a result of changes in land use and tightening regulations on hunting and gathering. The Birhor tribes have unique social structures and traditions. Their distinctive practices and beliefs shape their way of life, and a chief or elder often leads their society. Indian society is divided into

diverse languages, religions, and caste groups. Indian society has been a confluence of various social groups. Different groups kept entering India from time to time. Still, over time, the cultural traditions of all such groups became part of Indian society. Even so, many groups among them did not allow their physical and cultural characteristics to be destroyed, even after adopting some elements of external civilisation. Castes have been listed in Article 342 of the Constitution, giving them a new name of Scheduled Tribes. In fact, only such groups are referred to as 'tribe'. Continuous efforts have been made to uplift the backward tribes since independence. To develop these tribes, the government has been making continuous efforts over the last four decades. Despite all the efforts of the government, this tribal group is still suffering from many problems with its livelihood. The primitive tribe Birhor is one of these tribes, which is facing many problems like housing, health, poverty, malnutrition, unemployment, indebtedness, and illiteracy.

The human body needs proper nutrition to live a healthy and active life. Only a healthy citizen can build a healthy and developing society, as a result of which the nation becomes prosperous. If a man does not get food and nutrients in proper quantities, his physical development is often affected; along with it, mental and social development also do not take place. Due to all these, one suffers from many types of diseases; not only this, the condition of severe malnutrition leads to the death of such a person.

#### ➤ Objectives of the Study

- To study the assessment of health and nutrition level in the Birhor primitive tribes.
- To calculate the per capita/per day food consumption pattern according to the availability of food grains among the tribes in the study area.
- To analyse nutritional content based on the calculated dietary consumption pattern.

## II. SOURCES OF DATA AND METHODOLOGY

The research article is based on both primary and secondary data sources. Primary data is collected from the local Birhor tribes through a field survey conducted with family heads in Birhor primitive tribal-dominated villages of the Dharamjaigarh Block. The villages are selected to fulfil the research objectives, and the observation method is also used to collect primary data on nutrition and health levels in the study area, obtained through interviews and questionnaires. The study questionnaire is divided into four sections. In the first section, basic family information about tribes; in the second section, information related to the agricultural work of tribes; in the third section, information related to their diet and nutrition; and in the fourth section, questions related to the health problems, accessibility, and benefits of tribes.

The secondary sources of data obtained from the District Census Handbook and the District Statistics, Dharamjaigarh

Development Block (Raigarh District), Village-wise land use data, land uses Goshwara, crop-related data Ravi. Kharif Data related to commodities, Patwari Khasra, and animal wealth and equipment were obtained from the Revenue office and Patwari of the study area. Weather and climate-related data, such as temperature, rainfall, and humidity, obtained from the Indian Meteorological Department in Pune and from the Internet, were also used as required.

To better analyse the research on the Birhor primitive tribe of Chhattisgarh, correlation coefficient methods will be used for factor analysis. Maps, diagrams, and charts will be used to make the research analysis more engaging and easier to understand. Z-score methods will be used to assess health and nutritional status. Nutritional level assessment of diet and nutritional status in Birhor primitive tribal families is conducted using I.C.M.R. Guidelines based on prescribed standards. Nutritional level is analysed based on the consumption patterns of different nutrients, and the analysis is also conducted by classifying the nutritional level into High, medium, and low health levels. Calculation of health conditions in the Birhor primitive tribe of Chhattisgarh is based on a barometric study of disease, illness, and health-related conditions, as well as an anthropometric study of Body Mass Index, for analysis of health conditions. Body mass index is classified into three parts, and the excessive, normal and low weight indices will be determined.

#### ➤ Study Area

The Dharamjaigarh Block is located in Raigarh district in Chhattisgarh's northern region (Fig. 1). The district is one of Chhattisgarh's most beautiful areas, known for its forests, hills, and rivers. Dharamjaigarh's coordinates are 22.47°N, 83.22°E. It is 300 meters (980 feet) above sea level on average. On the Raigarh-Ambikapur Highway, Dharamjaigarh is situated around 77 miles northwest of Raigarh. 14,354 people live in Dharamjaigarh Block, with 7,279 men and 7,075 women, according to the 2011 census. The district has a population density of 380 people per square mile, or 146 people per square kilometre. The population grew by 14.65% between 2001 and 2011. 1,784 children, or 12.43% of Dharamjaigarh's total population, are between the ages of 0 and 6. The state average for Chhattisgarh is 969, while the child sex ratio in Dharamjaigarh is 1016. Compared with the state average of 70.28%, Dharamjaigarh's literacy rate is higher at 79.70%. Approximately 88.38% of men and 70.71% of women in Dharamsaigarh are literate, and 5,447 of the city's total population works or owns a business. Among them were 3,873 men and 1,574 women. According to the census survey, a worker is someone who engages in labour-intensive activities like business, services, or agriculture. Of the 5447 people who were employed, 1.68% worked in Main Work and 18.32% in Marginal Work. Dharamjaigarh's economy is based primarily on rain-fed agriculture. Farmers' main crop is paddy. However, they are unable to get a fair price for their crops because their produce is difficult to market. They are too small to handle all of the produce, even if there are a few. An IT corporation is considering setting up a plant here, which may open in two to three years. Dharamjaigarh is probably the most underdeveloped area in Chhattisgarh.

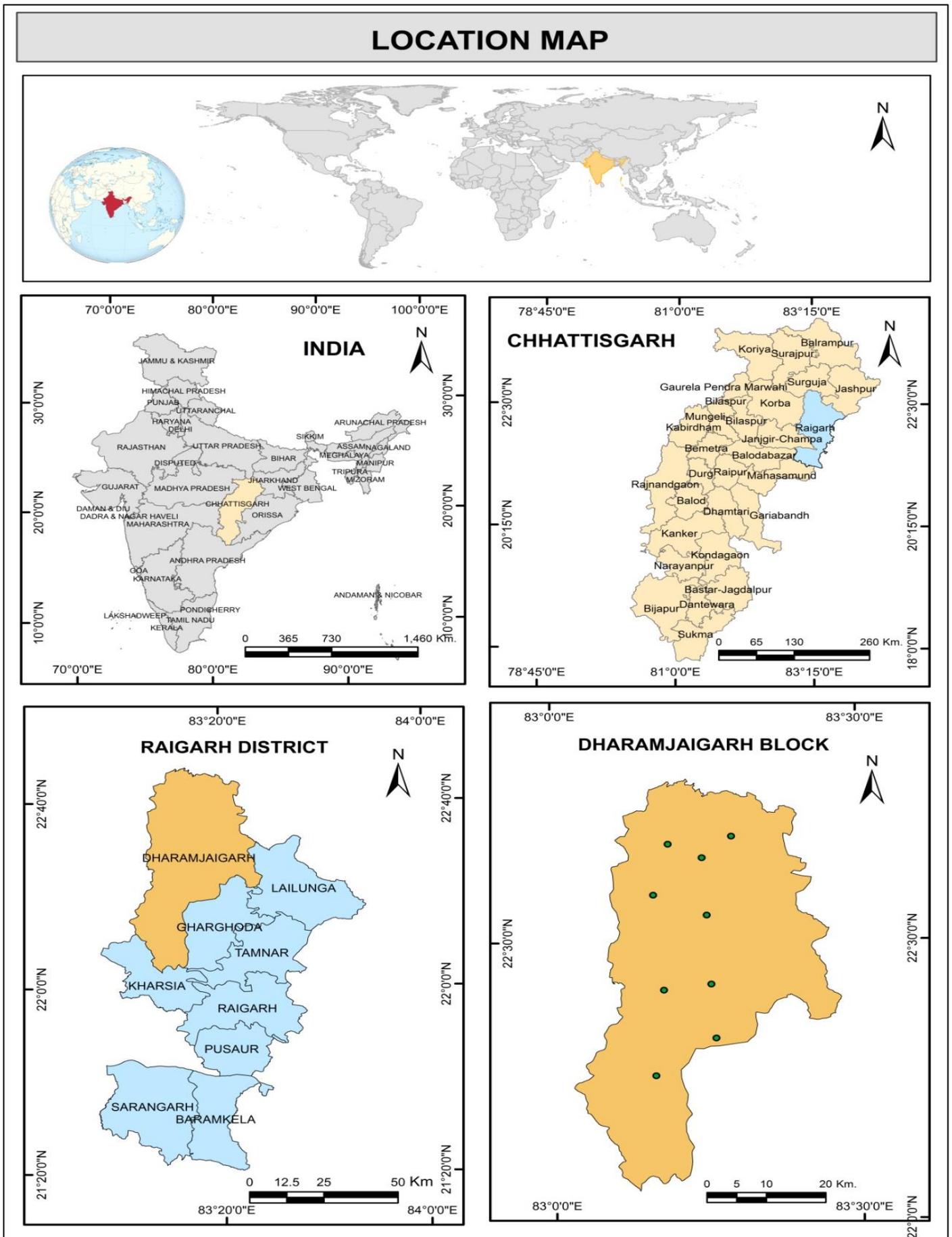


Fig 1 Location Map of the Study Area

➤ *Nutritional Status*

The nutritional status of a population involves conducting surveys, collecting data on dietary habits, anthropometric measurements (height, weight, etc.), and blood tests to measure micronutrient levels. Improving nutritional status is essential for the overall health and well-being of individuals and communities. It requires

implementing targeted interventions such as promoting balanced diets, providing nutritional education, enhancing food security, and addressing underlying social and economic factors that contribute to malnutrition. Regular monitoring and evaluation of nutritional interventions are crucial for tracking progress and making data-driven decisions for future actions.

Table 1 Dharamjaigarh Block: Calorie Consumption Pattern(Kilocalories)

S. No	Survey village	Based on the income group			Average
		High	Medium	Low	
		>10000	10000&20000	<20000	
1	Ongna	1228.32	1762.00	1817.89	1602.74
2	Darridih	1663.91	2106.64	1574.81	1781.79
3	Siwar	1794.17	7832.61	1911.49	3846.09
4	Kida	2008.17	1804.87	2065.18	1959.41
5	Jamargidi	1852.00	2106.91	-	1979.46
6	Balpeda	1750.51	1584.36	1648.91	1661.26
7	Ruwaful	1592.75	1910.68	3829.67	2444.37
8	Jamarga	1713.61	2071.81	2212.10	1999.17
9	Kumhichua	1766.31	561.94	2056.23	1461.49
		1707.75	2415.76	2139.54	2081.75

Source: Field Survey,2021

Calorie and food intake patterns, especially among tribal communities such as the Birhor, are often characterised by notable nutritional gaps and seasonal variations, according to studies conducted in the Dharamjaigarh block of the Raigarh region of Chhattisgarh. Consumption ranges from "extreme deprivation" during the lean season to higher intakes during the post-harvest phase. The average daily per capita calorie intake among vulnerable rural populations in this area often falls short of the 2,400 kcal recommended by the ICMR for rural areas. Almost 70% of total calories usually come from cereals, primarily rice. Foods high in fat and protein, such as dairy, meat, eggs, and lentils, are often consumed in small

amounts. Consuming fruits and vegetables rarely results in vitamin and fibre deficiencies. Research has shown that 30.2% of children in the Dharamjaigarh block are moderately malnourished and 11.1% are severely malnourished. More than 60% of the tribe's children in this block are short for their age, a sign of long-term, chronic calorie and nutrient deficiencies. Socio-Economic Drivers: Access to a varied and balanced diet is restricted by poverty, limited purchasing power, and geographic isolation, which are the main drivers of these patterns. High rates of respiratory illnesses, diarrhoea, and anaemia are associated with poor nutrition in this block (Table 1).

Table 2 Dharamjaigarh Block: Protein Consumption Pattern (Grams Per Day (g/Day )

S. No	Survey village	Based on the income group			average
		High	Medium	Low	
		<10000	10000&20000	20000>	
1	Ongna	41.13	59.76	61.70	54.19
2	Darridih	57.08	67.7	55.20	59.99
3	Siwar	61.26	61.32	65.68	62.76
4	Kida	68.66	62.56	69.61	66.94
5	Jamargidi	62.03	68.97	-	65.5
6	Balpeda	59.35	54.81	55.75	56.64
7	Ruwaful	54.31	65.3	77.42	65.67
8	Jamarga	57.87	72.03	81.11	70.34
9	Kumhichua	60.28	73.00	67.91	67.06
		58.00	65.05	66.80	63.23

Source: Field Survey,2021

A study of tribal groups in this area, including the Birhor people, indicates that a substantial overall shortfall and a strong reliance on plant-based sources typically characterise protein consumption patterns. Low Frequency of High-Protein Foods indicates that most people eat pulses, dairy, meat, fish, and eggs only once or three times a month, or once

a week. The Consumption of pulses, a vital source of plant-based protein, is often as low as 16.7–17.6g daily. About 30.2% of Birhor children in Dharamjaigarh suffer from moderate malnutrition, and 11.1% have severe malnutrition (Table 2).

Due to poverty and isolation, households lose access to both purchased pulses and forest-gathered items during the

pre-harvest (lean) season, further reducing protein consumption.

Table 3 Dharamjaigarh Block: Vitamin A consumption Pattern (Micrograms (mcg)/Week)

S. No	Survey village	Based on the income group			Average
		High	Medium	Low	
		<10000	10000&20000	20000>	
1	Ongna	2944.18	3952.23	3571.52	3489.31
2	Darridih	4440.98	4959.02	4380.29	4593.43
3	Siwar	2966.59	4035.23	4030.43	3677.42
4	Kida	4359.1	3191.07	3488.68	3679.62
5	Jamargidi	5432.36	6416.12	-	5924.24
6	Balpeda	4123.42	3844.76	3512.05	3826.74
7	Ruwaful	3613.12	5086.5	8671.35	5790.32
8	Jamarga	3913.18	5258.19	8924.6	6031.99
9	Kumhichua	4025.69	6370.03	12168.1	7521.29
		3979.85	4790.35	6093.38	4948.26

Source: Field Survey,2021

For most people, consumption of foods high in vitamin A, such as green leafy vegetables, orange and yellow fruits, and animal products (dairy, eggs, and liver), is either negligible or occurs fewer than 1 time per week. The main source of intake is wild leafy greens collected from forests, which are scarce for much of the year. Children in the

Dharamjaigarh block have a high prevalence of conjunctival xerosis (38%), a direct ocular sign of vitamin A deficiency, according to research. Systemic micronutrient inadequacy is further supported by the observation that xerosis of the skin is present in about 6.6% of youngsters in local tribal assessments (Table 3).

Table 4 Dharamjaigarh Block: Vitamin B2 Consumption Pattern (Milligrams (mg) Per Day)

S. No	Survey Village	Based on the income group			Average
		High	Medium	low	
		<10000	10000&20000	20000>	
1	Ongna	1.43	1.89	2.01	1.77
2	Darridih	1.92	2.33	2.16	2.14
3	Siwar	2.4	2.01	2.15	2.19
4	Kida	2.78	2.04	2.26	2.36
5	Jamargidi	2.15	2.35	-	2.25
6	Balpeda	2.01	1.83	1.89	1.91
7	Ruwaful	1.84	2.16	2.51	2.17
8	Jamarga	2.7	2.35	2.52	2.52
9	Kumhichua	1.98	2.41	2.45	2.28
		2.13	2.15	2.24	2.18

Source: Field Survey,2021

Vitamin B2 intake is extremely poor, according to nutritional assessments of the Birhor people in Dharamjaigarh. Adults in this area typically consume 0.4 mg of riboflavin (B2) each day. The main cause of the shortage is inadequate consumption of meat, eggs, and dairy products.

Although they eat some forest greens and rice, these are not as good sources of B2 as animal-based meals. Local health surveys often report angular stomatitis (cracks at the corners of the mouth) and glossitis (inflammation of the tongue) as symptoms of chronic B2 deficiency (Table 4).

Table 5 Dharamjaigarh Block: Vitamin 'C' Consumption Pattern (mg/Day)

S. No	Survey Village	Based on the income group			Average
		High	Medium	low	
		<10000	10000&20000	20000>	
1	Ongna	52.96	71.96	62.89	62.6
2	Darridih	82.19	82.02	81.81	82.01
3	Siwar	52.49	72.18	72.36	65.68
4	Kida	78.8	57.62	61.31	65.91
5	Jamargidi	100.76	115.68	-	108.22
6	Balpeda	75.46	71.11	64.55	70.37
7	Ruwaful	66.39	93.36	163.51	107.75

8	Jamarga	72.18	97.25	169.7	113.04
9	Kumhichua	73.35	118.59	231.53	141.16
		72.73	86.64	113.46	90.75

Source: Field Survey,2021

Due to traditional forest-gathering methods, the same population's vitamin C intake has a distinct pattern and frequently appears more appropriate. This is thought to be caused by consuming large amounts of phytate from a diet high in rice, which prevents iron absorption even when

vitamin C is present Seasonality must be taken into account when interpreting these numbers; consumption may drop sharply during the dry summer months, but it peaks when wild amla (Indian gooseberry) and berries are plentiful in the forest (Table 5).

Table 6 Dharamjaigarh Block: Calcium Consumption Pattern(mg/Day)

S. No	Survey village	Based on the income group			Average
		High	Medium	low	
		<10000	10000&20000	20000>	
1	Ongna	186	255.37	245.26	228.88
2	Darridih	275.1	306.84	259.6	280.51
3	Siwar	212.1	269.8	267.38	249.76
4	Kida	284.59	223.62	250.06	252.76
5	Jamargidi	313	407.37	-	360.19
6	Balpeda	256.92	236.56	213.44	235.64
7	Ruwaful	216.3	289.75	536.83	347.63
8	Jamarga	211.73	328.58	494.2	344.84
9	Kumhichua	255.51	377.01	687.5	440.01
		245.69	299.43	369.28	304.47

Source: Field Survey,2021

The average daily calcium intake in the region's tribal communities, which often ranges from 600 to 1000 mg depending on age and physiological state, is significantly higher than this. The fact that these people consume very little milk and dairy products is the main cause of this shortage. The majority of accessible calcium comes from wild green leafy vegetables harvested from the forest and from cereals (rice), which are erratic sources and contain phytates that may prevent absorption. The high percentage of stunting (60.3%)

among youngsters in the Dharamjaigarh block is a result of chronic calcium shortage. Although there is no evidence of clinical rickets, subclinical deficiencies manifest as low skeletal mineralisation and bone density, which can result in long-term physical weakness. Secondary hyperparathyroidism, in which the body draws calcium from the bones to maintain blood calcium levels, is frequently triggered by low dietary calcium, further weakening the skeletal structure.

Table 7 Dharamjaigarh Block: Iron Consumption Pattern (mg/Day)

S. No	Survey village	Based on the income group			Average
		High	medium	low	
		<10000	10000&20000	20000>	
1	Ongna	1.83	2.86	2.4	2.36
2	Darridih	1.94	4.19	1.66	2.6
3	Siwar	1.64	2.81	2.29	2.25
4	Kida	2.49	1.76	2.26	2.17
5	Jamargidi	2.2	3.03	-	2.61
6	Balpeda	1.79	1.34	1.32	1.48
7	Ruwaful	1.5	2.87	6.29	3.55
8	Jamarga	1.63	2.48	6.86	3.66
9	Kumhichua	1.81	3.39	6.86	4.02
		1.87	2.75	3.74	2.74

Source: Field Survey,2021

An average daily intake of roughly 9.2 mg per consumption unit was reported in a study of indigenous communities. This is significantly less than the recommended daily allowance in India, which is approximately 17 mg for adult males and 21 mg for adult females. Wild leafy greens and cereals like rice are the main sources of iron. The diet

contains a lot of phytates from rice, which prevent a small amount of iron from being absorbed. Even though this block contains a relatively low dose of vitamin C, which helps with iron absorption, it is often insufficient to overcome the high levels of inhibitors in the diet. Children in the Dharamjaigarh block have a very high prevalence of pallor (66%), which is

the main sign of iron-deficiency anaemia, according to clinical assessments. High rates of morbidity, such as heightened vulnerability to respiratory infections and overall physical tiredness, are associated with chronic iron deficiency. According to studies conducted in the tribal regions of Chhattisgarh, up to 94.7% of teenage females may

be anaemic, which puts them at high risk of becoming pregnant in the future. Iron insufficiency among women at home is exacerbated by traditional dining habits in which men and children are occasionally given preference over women for high-quality meals.

Table 8 Dharamjaigarh Block: Carbohydrate Consumption Pattern(grams/Day)

S. No	Survey village	Based on the income group			Average
		High	Medium	low	
		<10000	10000&20000	20000>	
1	Ongna	301.70	377.1	430.25	369.68
2	Darridih	357.90	386.98	290.52	345.13
3	Siwar	311.50	401.29	429.46	380.75
4	Kida	333.20	399.18	450.63	394.34
5	Jamargidi	319.20	370.89	-	345.05
6	Balpeda	369.00	395.60	395.25	386.62
7	Ruwaful	331.25	430.55	464.72	408.84
8	Jamarga	390.20	406.49	495.62	430.77
9	Kumhichua	385.20	395.79	491.2	424.06
		344.35	395.99	430.96	387.25

Source: Field Survey,2021

The majority of the daily diet consists of carbohydrates, which often provide 70% to 85% of the energy consumed. With an average daily consumption of 396.2 g, cereals (rice/paddy) are the staple source. Potatoes and wild yams are important secondary sources, with an average daily intake of 227.5 g. Traditionally eaten, rice supplied under the Public Distribution System is gradually taking its place. Since complex carbohydrates are the main source of energy, consumption of refined sugar is incredibly low, averaging just 7.6 g per day. The lack of variety causes hidden hunger even while carbohydrate levels meet or exceed the minimal energy

requirements. Eating a lot of rice, which is high in phytates, prevents the body from absorbing vital minerals like calcium and iron. This high carbohydrate intake does not prevent chronic energy deficiency. Still, the semi-nomadic hunter-gatherer Birhor needs to engage in physically demanding activities such as forest hiking and traditional crafts (rope-making). Despite consuming a high amount of carbohydrates, about 41.3% of people in this population have CED (BMI < 18.5), suggesting that the quality and bioavailability of the food are inadequate for overall health.

Table 9 Dharamjaigarh Block: Fat Consumption Pattern(grams/Day)

S. No	Survey village	Based on the income group			Average
		High	Medium	low	
		<10000	10000&20000	20000>	
1	Ongna	21.29	22.9	28.3	24.16
2	Darridih	17.25	23.5	27.79	22.85
3	Siwar	21.5	24.6	30	25.37
4	Kida	20.07	25.64	31.2	25.64
5	Jamargidi	16.26	19.63	-	17.95
6	Balpeda	15.33	21.25	31.5	22.69
7	Ruwaful	20.36	23.25	28.6	24.07
8	Jamarga	26.15	28.06	29.6	27.94
9	Kumhichua	17.2	25.21	32.06	24.82
		19.49	23.78	29.88	23.94

Source: Field Survey,2021

The Birhor tribes) often shows an average daily fat intake of 23.94. Consumption patterns typically reveal that most fat comes from visible fats (oils used for cooking) and invisible fats found in cereals and pulses. High-fat animal products and processed foods are usually absent or present in negligible amounts in these diets. For a healthy diet, fats should ideally contribute 20–35% of total daily calories. In

rural blocks, this percentage is often lower because the diet is heavily dominated by carbohydrates (cereals). Low-income households in blocks like Dharamjaigarh may prioritise calorie-dense staples (rice) over fats due to cost. Rural populations in Dharamjaigarh are often engaged in physically demanding agricultural labour. While they require higher total energy (roughly 2400 kcal/day), their energy is primarily

derived from carbohydrates rather than fats. Studies in the region often correlate low-fat consumption with high rates of underweight and stunting in children. Unless the household has livestock for milk/ghee, fat intake remains restricted to basic vegetable oils.

To measure the nutritional status of the surveyed villages in the study area, the daily intakes of calories, protein, calcium, vitamin A, vitamin B, vitamin C, and iron have been calculated based on the consumption of food grains among Birhor primitive tribal farming families. First of all, all these nutrients are measured separately, each converted into a "2" score. Notably, it is difficult to measure all nutrients

simultaneously to assess overall nutrition. The combined index is obtained by converting the score into a combined value. It is also appropriate to mention here that the nutritional level of the 'Birhor primitive tribe' was low at the time of measurement.

Nutritional status refers to the health condition of an individual or a population in terms of their diet, nutrient intake, and overall nutritional well-being. It reflects how well an individual's nutritional needs are met and directly impacts their growth, development, and overall health. The combined index numbers are both positive and negative and are classified as High, Medium, and Very Low.

Table (10) Dharamjaigarh Block: Nutritional Level Index

S.N	Surveyed Village	Nutritional Elements									
		Calories	Protein	Calcium	Vitamin A	Vitamin B2	Vitamin C	Iron	Carbo-hydrate	Fat	Composite index
1	Ongana	-0.75	-0.9	-1.23	-1.36	-1.55	-0.6	-0.39	-0.88	+0.16	-7.5
2	Darridih	-0.38	-0.56	-0.36	-0.34	-0.02	-0.12	-0.04	-1.46	-0.21	-3.49
3	Siwar	+3.8	-0.39	-0.88	-1.19	+0.19	-0.52	-0.55	-0.62	+0.49	+0.33
4	Kida	-0.02	-0.14	-0.83	-1.19	+0.89	-0.52	-0.67	-0.3	+0.57	-2.21
5	Jamargidi	+0.02	-0.23	+0.99	+0.88	+0.44	+0.54	-0.02	-1.46	-1.59	-0.43
6	Balpeda	-0.63	-0.76	-1.12	-1.05	-0.97	-0.41	-1.68	-0.48	-0.26	-7.36
7	Ruwaful	+0.96	-0.22	+0.78	+0.76	+0.11	+0.52	+1.36	+0.04	+0.13	+4.44
8	Jamarga	+0.06	+0.06	+0.73	+0.98	+1.55	+0.66	+1.52	+0.55	+1.22	+7.33
9	Kumhichua	-1.03	-0.13	+2.35	+2.36	+0.56	+1.36	+2.05	+0.39	+0.34	+8.25
Average		+0.23	-0.36	+0.05	-0.02	+0.13	+0.10	+0.18	-0.47	+0.09	-0.07

Source: Field Survey,2021

➤ *High Nutritional Status*

It is clear from the analysis that in the surveyed villages of the study area, Jamarga and Kumhichua, more than 5 had a High nutritional nutrition level index. The study area is the Jashpur Samari part; the same area has been found to have an abundance of rural forests, where the habitation of the 'Birhor' primitive tribe has been found to consume excessive amounts of forest produce. The surveyed area is in the High nutritional level category, but substantial regional disparities were reflected here. Where village Buldega is 26.11 per cent covered by forests of the total area. Their village, Dasdumartoli, the Batikela village, is located in the plains; it has the Highest bare crop area of 45.59 per cent and 43.36 per cent, respectively. A sufficient caloric intake is necessary to meet the body's energy requirements. Consuming too few

calories can lead to malnutrition, while excessive calorie intake can lead to overweight and obesity.

➤ *Medium Nutrition Status*

A moderate nutritional status index has been obtained in the surveyed villages of Dasdugartoli, Batikela, and Buldega of the study area. The main reason for this is the excess of the Jashpur Pat area. Due to the flat ground in the area, the excess uncropped area has been found at 46.47 per cent in village Behrakhar, 43.70 per cent in village Jhargaon, 42.59 per cent in Savatoli, and 31.27 per cent in village Kasabel. Still, a deficiency in agricultural work involvement by the Birhor primitive tribe was found. Due to a lack of awareness and limited food and education, a medium nutrition level index (50) was obtained.

Table 11 Dharamjaigarh Block: Nutritional Level Index

S. N	Nutritional Status	Nutritional Level	No. of Village	Surveyed village
1	High	<5	2	Jamrga, kumhichuwa
2	Medium	0 to 5	2	Siwar, ruwaful
3	Low	-10 to 0	5	Daridhi, jamargidi, kida, Ongana, balpeda

Source: Field Survey,2021

➤ *Low Nutritional Index*

It is clear from the analysis that in the surveyed Daridhi, Jamargidi, Kida, Ongana, and Balpeda of the study area, a low nutrition level index (-10 to 0) was observed. Most Birhor tribal farmers in the surveyed village depend on jhum agriculture. and is still in a backward state. Due to the excess of Pat and Plateau areas, agricultural production is lower.

Livelihood-earning agricultural work is done by them. Along with this, the Birhor family is forced to earn their living by collecting wages and forest produce, which is the main reason for their poor nutrition.

### III. CONCLUSION

The effect of all these nutrients was determined based on the nutritional index of the surveyed 'Birhor primitive tribes' nutritional level, under which 'High nutritional level of Birhor primitive tribes' was observed in Jamrga, Kumhichuwa Village. On the other hand, an abundance of rural forests has been found in the area, where the Birhor primitive tribe has been observed consuming an excessive amount of forest produce. In contrast, low nutritional levels have been found in Daridhi, Jamargidi, Kida, Ongana, and Balpeda. The Birhor tribe is an indigenous community residing mainly in northern Chhattisgarh. Like many other tribal communities, they often experience marginalisation and limited access to basic healthcare and nutrition services. Remote tribal communities like the Birhor often face difficulties in accessing healthcare facilities due to their geographical isolation and inadequate infrastructure. The availability of doctors, medical clinics, and proper medical supplies might be limited in these areas, resulting in health disparities. Malnutrition can be a prevalent issue among tribal populations due to limited access to nutritious, balanced diets. Poor agricultural practices, limited food diversity, and poverty can contribute to malnutrition among the Birhor tribes.

It is worth noting that the villages Daridhi, Jamargidi, Kida, Ongana, and Balpeda, which have low nutritional levels, are surrounded by plateaus on all four sides. Here, the production of coarse grains, in which maize has been found more. Due to the lack of roads and other infrastructure, education could not be developed. As a result, consumption of nutritious food decreased. It is clear from this that the geographical background of the 'Birhor' primitive tribe families directly affects the food availability and nutrition level. The same is also a major hindrance to the socio-economic development of the Birhor primitive tribe in the Dharamjaigarh Block. Access to clean water and proper sanitation facilities is crucial for maintaining good health. Inadequate sanitation and poor hygiene practices can lead to the spread of waterborne diseases and other health problems. Tribal communities, including the Birhor tribe, might be more vulnerable to infectious diseases due to their isolated living conditions and limited exposure to modern healthcare practices. Outbreaks of diseases like malaria, tuberculosis, and respiratory infections can pose significant health risks. Maternal and child health are often areas of concern in tribal communities. Limited access to antenatal and postnatal care, along with poor nutrition, can result in Higher maternal and infant mortality rates. The Birhor tribe, like other indigenous communities, may have their own traditional healing practices. While some of these practices can be beneficial, others may lack scientific evidence or even pose health risks if not applied properly. To address these issues, various governmental and non-governmental organisations have been implementing initiatives to improve healthcare access and nutrition among tribal populations. These initiatives often include efforts to establish healthcare centres in remote areas, promote nutrition awareness, provide supplementary nutrition to pregnant women and children, and, where

appropriate, integrate traditional practices with modern healthcare.

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