

## **PREVALENCE OF UNDERNUTRITION AND ITS ASSOCIATED FACTORS IN TRIBAL POPULATION OF GADCHIROLI (VIDARBHA REGION)**

### **ABSTRACT:**

**INTRODUCTION:** Under nutrition can be well defined as a result of insufficient food intake, living life with hunger and repeated infection. It comprises being underweight for one's age, stunted growth where subjects are too short for one's age, hazardedly thin wasted body and deficient in vitamins and minerals also known as micronutrient malnutrition.

**AIM:** Prevalence Of Undernutrition And Its Associated Factors In Tribal Population Of Gadchiroli at Aheri (Ct), Gadchiroli (Vidarbha Region) District, Maharashtra. **MATERIAL**

**AND METHOD:** Family must consists of 1 children between ages of 1-6 years and their mothers must be available and willing to be interviewed were incorporated in the sample. Unwilling mothers were excluded. Three hundred study participants were included in the study. **RESULTS:** The response rate was 100%. Among all participants, 153 (51%) and 147 (49%) were females and males, respectively. Out Of the total parents, 173(57.66%) could not read, 56 (18.66%) can only read and write, 47(15.66%) of them has completed primary education and 24(8%) has completed secondary school. Out of 300 participants, 123 (41%) had monthly income of less than 750 rupees. **CONCLUSION:** Undernutrition was high among children below six years of age in gadchiroli, Aheri CT, Gadchiroli. Overall undernutrition was high found to be high and proper management should be done.

**KEYWORDS:** education, sanitation, nutrition, CT and Gadchiroli

## **INTRODUCTION:**

Affordable food, quality nutrition and care is a need of development and yes every single person must have access to it. Unfortunately very few people are able to have it in their life and rest of them is living their life in difficulties where they are unable to secure adequate nourishment for them self and their offspring in manageable way so far and living life under shadow of under nutrition<sup>1</sup>. Under nutrition can be well defined as a result of insufficient food intake, living life with hunger and repeated infection. It comprises being underweight for one's age, stunted growth where subjects are too short for one's age, hazardously thin wasted body and deficient in vitamins and minerals also known as micronutrient malnutrition<sup>2</sup>.

After independence, various government policies and projects are pursued and focused in development of tribes<sup>3</sup>. They are involved in uplifting their livelihood, their education and health primarily. Although it is sad to find out tribes are most undernourished section of today's India. According to report by "Nutrition India Info", 4.7 million of tribal children are a part of undernourishment which affect their survival, growth, learning, and productivity as adults. Similarly, income of these tribes has been adversely affected by losses and access to productive resources forest, agricultural lands and debts<sup>4,5</sup>. Tribal populations are socio-economically challenged as compared to other population groups. They differ to others owing to the variable geographical, socioeconomic and cultural practices<sup>6</sup>.

Health status of tribes is very poor as they are isolated in remote areas where, they are far from development going in the country. There is no doubt apart from health status that how poorly nourished they are, this may be a cause of their primitive agricultural practices, their changes occupation as daily wagers, and irregularity of food supply. It is un debated fact that insufficient food intake causes Protein mal nutrition (PEM) and chronic energy deficiency (CED)<sup>7</sup>. India is a country where the tribal population is four times more than that of Australia. 8.6% of total Indian population are tribes, living in 29 states and nine union territories. Maharashtra is one of the state with vast socioeconomic, demographic as well as geographic distribution<sup>8</sup>. Apart of having distinguish race, cultural and background features it also comprises 9.35% of tribal population out of total population in Maharashtra

according to census 2011. Where Amravati division and Nagpur division were indeed surprising where Amravati reports 13.98 %, Yavatmal reports 18.54 % , Wardha reports 11.53%, Chandrapur reports 17.65% and Gadchiroli reports all of the more that is 38.68% of the total population residing in these places<sup>9</sup>.

Tribal children and women residing in these areas are adversely affected. NFHS 5, survey depicts children with stunted growth low height for their age increased in 13 states while children with low weight for their height was increased in 12 states.<sup>10-15</sup>

**Table no 1. Share of children with low height in comparison to their age**

State	2005-06	2015-16	2019-2020
West Bengal	44.6	32.5	<b>33.8</b>
Telangana	*	28.0	<b>33.1</b>
Maharashtra	46.3	34.4	<b>35.2</b>
Kerala	24.5	19.7	<b>23.4</b>
Karnataka	43.7	36.2	<b>35.4</b>
Jammu & Kashmir	*	27.4	<b>26.9</b>
Himachal Pradesh	38.6	26.3	<b>30.8</b>
Gujarat	51.7	38.5	<b>39.0</b>

Source: NFHS 2019-20

**Table no 2 Share of children with low weight in comparison to height**

State	2005-06	2015-16	2019-2020
Maharashtra	16.5	25.6	<b>25.6</b>
Bihar	27.1	20.8	<b>22.9</b>
West Bengal	16.9	20.3	<b>20.3</b>
Gujarat	18.7	26.4	<b>25.1</b>
Karnataka	17.6	26.1	<b>19.5</b>
Andhra Pradesh	*	17.2	<b>16.1</b>
Telangana	*	18.1	<b>21.7</b>
Kerala	15.9	15.7	<b>15.8</b>

Source: NFHS 2019-20

Worst form of mal nutrition can be seen, which is difficult to reverse but not impossible. Worldwide distribution of stunting is responsible for around third death of children below 5 years of age. In those districts of Maharashtra, where tribes have been residing, death of

children due to malnutrition has been developed as common happening. Ancestral women tribes are developing high rates of anemia and whole of the tribes are living with deficiency of in adequate food ingestion. Tribal women were not healthier in comparison to non-tribal women in the provisions of standard of living, education and other socio-demographic indicators.

Observing side wise to the arising glitches concerned to under nutrition, Maharashtra nutrition program 2019-2023 has been propelled for the Making Nutrition Aspirational for Children and Women programme (POSHAN), a \$10 million corporation between The Power of Nutrition, UNICEF and the Government of Maharashtra. In line with POSHAN Abhiyaan (the Prime Minister's Overarching Scheme for Holistic Nourishment). At the same time as the programme has state wide encouragement, it also has preliminary focus on five districts unveiling a high burden of stunting: Nandurbar, Gadchiroli, Osamanabad, Washim, Palghar and the Municipal Corporations of Bhiwandi and Malegoan.

Though, to the finest of our understanding, there has not been any study to find out prevalence of under nutrition situation here.

In contradiction of this background, was carried out with detailed purposes, to calculate nutritional status among children under 6years of age in the Aheri (CT) (28.07 percent)of schedule tribe is residingwhich is primarily a tribal area in Gadchiroli District, to apprehend the cause of under nutrition among children and study pattern of food habits and diet among those tribes.

### **Aim**

To find out prevalence of under nutrition

### **Objectives**

1. To calculate nutritional status of tribal children under six years of age.
2. To find out associated factors to under-nutritional status.

### **METHOD**

The cross-sectional study was conducted in tertiary care hospital.

Study Period: two years

Study area: Aheri (CT), Gadchiroli district, Maharashtra

### **Study Population**

All the participants were selected using lottery method where children below six years of age were study unit.

### **Selection of Patients**

Sample size for present study was calculated using formula for estimation of single proportion assuming 25% of under-six children are under weight with 95% CI and 5% margin error. Calculated sample was 295 -300.

**Inclusion Criteria:** Family must consists of 1 child between ages of 1-6 years and their mothers who were willing and co-operative were included in present study.

**Exclusion Criteria:** Unwilling mothers were excluded.

Variable: Nutritional status is generally dependent upon two factors namely external and internal. External factors are food safety, cultural, social, and economic factors, while internal factors are sex, age nutrition, behavior, physical activity and disease. Stunting, wasting and underweight were dependent Variable. While economical, demographical, occupation maternal age was independent variable.

Data collection tool: Data was collected by preparing structured questionnaire, which was prepared in Marathi language, English language and a local language for a tribe.

### **Measurements**

In accordance to manual by WHO anthropometric measurements (weight and height) were taken. For measurement of older children a portable stadiometer was used and in the case of younger children less than two years calibrated length board was used. Children above two years were measured in standing position while younger children less than two years were measured when they were lying down. At the time of measurement their head shoulders, buttocks and heels were attached to vertical surface of the stadiometer and measurement of height was recorded to the nearest 0.1cm. Weight were measured using weighing scales for infants and toddler, before measurement the scale was set to zero. For

proper weight to be recorded all children's weight were measured with less cloth and bare foot. Infant's weight was recorded in supine position and that of older children's were measured in sitting position. Weight was recorded immediately after measurement to the nearest 0.1 kg. Further underweight, wasting and stunting was calculated using weight and height measurement.

## Results:

### Socio demographic characteristics:

300 participants participated in present study, response rate was 100 %. Out of 300, 153 (51%) participants were males and 147(49%) participants were females. Out Of the total parents, 173(57.66%) could not read, 56 (18.66%) can only read and write, 47(15.66%) of them has completed primary education and 24(8%) has completed secondary school. Out of 300 participants, 123 (41%) had monthly income of less than 750 rupees. 205 (68.33%) of mother were below age of 18 at the time of marriage, 54 (18%) were between age group of 18-20 and 41 were above 21 years of age. 263 (87.7%) participants did not had toilet in their home.(Table 3).

**Table 3** Socio demographic characteristics: Gadchiroli

Variables		Participants	Percent
Sex	Male	147	49
	Female	153	51
Age	<12 Months	50	16.66
	12-23 Months	66	22
	24-35 Months	70	23
	36- 47 Months	51	17
	48-72 Months	63	21
Educational status	Unable to read and write	173	57.66
	Can read and write	56	18.66
	Primary education	47	15.66

	Secondary education	24	8
Monthly income of family	<750	123	41
	750-1500	86	28.66
	>1500	91	30.33
Age at marriage (mother of the child)	< 18 years	205	68.33
	18-20 years	54	18
	21 yrs & above	41	13.66
Toilet	Yes	37	12.3
	No	263	87.7
Number of family members	Less than 5	88	29.3
	5-7	71	23.66
	More than 7	141	47
Diarrhea in last month	Yes	30	10
	No	270	90

**Table 4** Severity of undernutrition among children below six years of age

Malnutrition		%	
Stunting	Severe stunting	27	7.9
	Moderate Stunting	58	17
Wasting	Severe Wasting	15	4.4
	Moderate wasting	23	6.7
Underweight	Severe underweight	11	3.2
	Moderate underweight	38	11.1

Above table 4 depicts over all prevalence of under nutrition among children was 57.33%, among them 85 were stunted, 38 were wasted and 49 were under weight. Above table also depicts 27, 15 and 11 of the participants were severe stunted, wasted and underweight respectively.

**Table 5: Nutritional Status of children by age.**

Age (months)	Stunting	Wasting	Underweight
	(%)	(%)	(%)
<24	10(15.3)	10 (15.3)	7(11.9)
25-48	23 (32.9)	6 (9.6)	8 (11)

49-72	18 (20.5)	7(10.3)	14 (17.9)
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Table 5 depicts Most of the stunted were seen in age group of 25-48 months, most wasted were seen in between age group of less than 24 months and underweight were more seen in age group of 49-72 month of age.

**Risk factors:**

In multiple logistic regression analysis, education status of mother, toilet and diarrhea disease in last month was significant variable for stunting. On the basis of results of multivariate analysis, age and preterm was associated with wasting. Children age between 5-6 years was 2.5 times more likely to be wasted as compared to other children. The table depicts findings of logistic regression on underweight, which shows positive relationship between age and underweight. In households with family members more than 7 or children in large family size were 3 times more underweight than those from smaller family size. And also those children who did not suffer from any illness in last 30 days to survey date had significantly lower likelihood of being underweight.

**Discussion:**

Present study observation suggests that prevalence of undernutrition in tribal children aged 0-6 years were disturbingly high in Gadchiroli district<sup>11</sup>. The overall under nutrition was 57.33% and levels of stunting, wasting and underweight were 24.9%, 11.1% and 14.3 % respectively. In this study, prevalence of stunting was 24.9% and prevalence of undernutrition was found to be associated with age, health status, family status, size, and society where they reside. Those children who were in between age group of 25-48 months seemed to be relatively at higher risk of stunting, and on the other side they were having lower odds of wasting and underweight as compared to those of other groups. Children who were not availed with proper nutrition and care and also lacks nutrition in mother's milk were under weight. Sickness was also a factor promoting under nutrition beside those. Children who were not suffering from any sickness and disease like diarrhea, cold or any

other acute or chronic illness were less likely to be underweight<sup>11</sup>. Present findings were consistent with study conducted previously in various population groups, where they found that malnourished children were more exposed to sickness or sick children are likely to be underweight, it shows both way relationship of health and disease with under nutrition. Larger family group having family members more than 7 were more likely to be stunted or underweight as compared to those children living with small family having family member less than 5. The present findings are also similar to other studies where high prevalence of stunting among the children were common in family with large households as compared to children in small family and few of the dissimilarities may be due to sample size difference and social life difference with other studies<sup>10</sup>. In the present study prevalence of wasting was 11.1 % which is lower to the previous study conducted in India (28.52%). this finding is analogous with research work testified, which shows it was 9.5 % in Nigeria, 10. 2% in Vietnam and in eastern rural Ethiopia it was 7.4 %. The probable details might be difference in sample size and study period. It might be also due to dissimilarity in socioeconomics and nurturing pattern.

In present study prevalence of underweight is 14.3% which is lower than other studies results where Vietnam reports 27.7% and Kenya reports 26.5%. The variance in the results is may be because of geographical site, population size and also due to alteration of health and family status among two countries. Present study showed prevalence of stunting, wasting and underweight was 7.9%, 4.4%, and 3.2% respectively. It also supports education status, preterm babies, family status, family income, diarrhea, toilet and family size were independently related to outcome variables. Present study showed that maternal educational status was autonomously associated with outcome variables. Present study revealed diarrhea and use of toilet were cause to mal nutrition and the study was supported by Bhandari et al study. Beyond these entire supportive factor, there is a budding body of collected works that put forward premature malnutrition in children is essentially interrelated to lack of food and poverty. The findings of present study agree with literature. Participants were not able to take minimum level of required nutrients through diet and it should be taken in serious manner, as it is life threatening for their proper growth. Insecurity of food in tribes is generally due to their dependence traditional

necessity on forest as means of support and agricultural crisis. In addition loss of source of revenue, prohibitions in public distribution system and economic status results under nutrition in children under 6.

### **Conclusions:**

Present study concludes undernutrition was high among tribal children below six years of age in gadchiroli, Aheri CT, Gadchiroli. Overall undernutrition was high found to be high and proper management should be done, focusing on health, education, sanitation and most important nutrition and good food habits. As these were the factors affecting children nutritional status. Government must be involved in its management, community based intervention should be carried out prioritizing poor households with more family members. Proper knowledge about child health, nutrition, proper skill development in those tribes and sanitation is required to be promoted. We believe if the economic status of those tribes will arise, a new day will be waiting with new possibilities.

Ethical clearance: Taken from institutional ethics committee

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