



Anaemia among Bhunjia tribal women of Chhattisgarh, India and their correlation with BMI

In Chhattisgarh, 42 groups have been identified as scheduled tribes. They form approximately 32 percent of the total population of Chhattisgarh. Bhunjia tribe is one of the vulnerable tribe of Chhattisgarh. Bhunjia tribe inhabit hilly forests of Gariyaband district of Chhattisgarh state. Bhunjia mainly comprise of two social groups - Choukhutiya and Chinda Bhunjia^(2,3,4,5). Population of Bhunjia tribe of Chhattisgarh is declining⁽¹⁾. The health and nutritional problems are most common in tribal women of India. Nutritional anaemia is one of the major problems of Indian rural and tribal women. According to WHO the prevalence of anaemia is 37.7% to 41.5% among non-pregnant women and 38.9% to 48.7% among pregnant women in developing countries⁽⁶⁾. Present study was carried out among 227 Bhunjia women consisting of 178 lactating and 49 pregnant women. Interview schedule and observation technique was used for data collection. For estimation of Hb HemoCue technique was followed. 90.17 percent lactating and 87.76 percent pregnant women were observed to be anaemic. Pearson correlation showed positive correlation between Hb level and BMI at 0.05 level of significance.
Key Words : Anaemia, Bhunjia, Women, and Chhattisgarh.

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Introduction :

Health is one of the major components of human development. There are huge gaps in commitment and achievement with regard to health status of Indians and affordability of health care. Tribal women of India are at a great disadvantage due to illiteracy and ignorance. Although several studies on maternal health and nutritional status have been carried out in various populations of India there is dearth of information pertaining to the health of women in tribal populations. Women have health problems linked to their child bearing and conception. The socio-economic and cultural background influences the perception of health and the utilization of health services. Despite several growth oriented policies adopted by the government, the widening economic and regional disparities are posing challenges for the health sector.

The National Family health survey (NFHS-3) reported that anaemia is major health problem especially in tribal women and children. Anaemia is prevalent among low education group and schedule tribes. Therefore, an attempt has been made to study the maternal health of Bhunjia with special reference to BMI and anaemia.

Bhunjia is a minor group amongst the 42 scheduled tribes of Chhattisgarh. Its population according to 2001 census was 9357. Bhunjia is a small Dravidian tribe of Chhattisgarh. They inhabit the remote forest at Udandi wild life century and adjoining villages along with kamar (a vulnerable primitive tribe of Chhattisgarh) of Gariyaband,

Dhamtari District. Bhunjia have two major sub-divisions viz Choukhutia and Chinda Bhunjia^(3,4,5). Choukhutia Bhunjia have originated from marital relationship among Halbas and Gond⁽²⁾. Bhunjia left shifting cultivation and started settled agriculture. They still practice collection of roots, fruits, Mahuwa, Chaar, Tendu leaves etc from forest and sell valuable minor forest products. Wage earning as farm labourers, working on road for cutting timbers⁽⁷⁾, GMNREGA, brick workers, agriculture and working as agricultural labourers are their primary occupation. Aboriginal tribes of this area invariably lead an isolated life from the general stream. They belong to different ethnic groups and have low levels of education, poor social, cultural and political development. Bhunjia tribe of this region is regarded backward in each and every aspect of life like agriculture, education and even in health indicators⁽⁸⁾.

Methodology :

For the present empirical study 223 households from Chhura, Gariyaband and Mainpur block of Gariyaband District were selected out of 227 women. All the villages were inhabited by Bhunjia. Census survey method was used for selection of pregnant (49) and lactating (178) Bhunjia women. 5 women refused to participate for weight-height and Hb test. Structured Interview Schedule and Semi-participatory observation technique were used for data collection. Anthropometric measurements viz height vertex and weight were taken on the position of FHP by the use of anthropometer and weighing machine⁽⁹⁾. Hb was observed

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through HemoCue 301 method. Anaemia cut off points used were those recommended by WHO for women and pregnant women⁽¹⁰⁾. Besides these, other socio-demographic information such as annual income, literacy rate, house hold type and size, source of drinking water were also collected. Data was analysed using SPSS 16.0.

Objective :

The aim of the present investigation was to assess the anaemic status among Bhunjia women of Gariyaband district of Chhattisgarh and highlight the health related problems of Choukhutia Bhunjia women with regard to anaemia and nutritional status.

Result :

	Normal	Mild	Moderate	Severe	Total
Lactating Women	9.77 (17)	25.86 (45)	43.68 (76)	20.69 (36)	100 (173)
Pregnant Woman	12.24 (6)	18.37 (9)	53.06 (26)	16.33 (8)	100 (49)

Observed Range	Normal	Mild	Moderate	Severe
Lactating Women	12-13.7	11-11.9	8.1-10.9	3.7-8.0
Pregnant Woman	11-12	10.10.9	7.1-9.8	4.7-7

Table No. 01 shows the percentage distribution of anaemia among Bhunjia women. The table revealed that very high percentage i.e. 20.69 percent of lactating women were severely anaemic. Similarly, the percentage was observed to be high among pregnant women also i.e. 16.33 percent however, the percentage of moderate form of anaemia was high in both lactating and pregnant women. Table No. 2 shows that the haemoglobin level was found to be in the range of 3.7 g/dl to 8.0 g/dl and the mean value was 6.50g/dl ±1.21 among the lactating women and its range was 4.7 to 7 g/dl and mean value 6.96g/dl ±1.21 in pregnant women in the severe category. The lactating women showed a range of 8.1-10.9g/dl and mean value was 9.94g/dl ± 0.78 and 7.1-9.8 g/dl and mean value 9.41g/dl ±0.95 among the pregnant women under the moderate category. Range of 11-11.9 g/dl and mean value 11.40g/dl ±0.50 of Hb level was observed in lactating women and a range of 10-10.9g/dl, mean value of 10.9g/dl Hb level was observed in pregnant

Anaemic category	Lactating Mothers					
	No.	%	Mean BMI	±SD	Mean Hb	±SD
Severe	36	20.69	16.60	1.98	6.50	1.21
Moderate	76	43.68	17.46	1.68	9.94	0.78
Mild	45	25.86	18.89	3.64	11.40	0.28
Normal	17	9.77	16.60	1.91	12.51	.50
Total	174	100.00	17.39	2.30	10.09	0.69

Category (WHO, 1995)	BMI Range- Kg/M ²	No	%	Mean BMI	± SD	Mean Hb	± SD
Very severely underweight	<15	15	8.62	14.22	0.58	7.99	2.58
Severely underweight	15 - 16.0	16	9.20	15.49	0.24	8.09	2.32
Underweight	16 - 18.5	94	54.02	17.08	1.90	9.71	2.05
Normal (Healthy Weight)	18.5 – 25	45	25.86	19.28	3.11	10.10	2.35
Over Weight	25 – 30	4	2.30	28.88	3.98	11.63	0.22
Total		174	100	18.99	1.96	9.50	1.90

	BMI	Hb
BMI Pearson Correlation	1	.934*
Sig. (2-tailed)	.020	
HB Pearson Correlation	.943*	1
Sig. (2-tailed)	.020	

*. Correlation is significant at the 0.05 level (2-tailed).

Pearson Correlation is positive correlation and significant at level of 0.05 between BMI and Hb.

women under the mild category. Range of 12-13.7g/dl, mean value 12.51g/dl ± 0.50 was found in lactating women and 11-12g/dl, mean value 11.75g/dl ±0.38 Hb level was found to be in normal category among the pregnant Bhunjias.

The pregnant women showed a higher mean value of severe type 6.96±1.21. whereas mild and moderate were 10.9g/dl ± 0.31 and 9.41g/dl ± 0.95 respectively. Whereas, the mean value of normal pregnant women was 11.75g/dl ± 0.38.

Table No. 3 shows the status of anaemia category among Bhunjia lactating women. The mean BMI was observed to be lower in the category of severe anaemic women.

The table No. 4 shows the mean distribution of BMI, Hb and blood pressure among the lactating Bhunjia women of Chhattisgarh. The table revealed that almost 53.98 percent of the women were under underweight category. Only 26.14 percent of the women were normal with regard to BMI. 9.09 percent of Bhunjia women were categorized under severely underweight and 9.52 percent under very severely underweight and only 2.27 percent were categorized under overweight.

Discussion :

The status of prevalence of anaemia is widely prevalent among tribal women of reproductive age group (15-49 Years). This is similar to what has been reported for elsewhere in India and other developing countries. The prevalence of anaemia have been reported to be 57.6 percent among the women of Chhattisgarh by Galhotra et al (2014)⁽¹¹⁾. He also recorded the prevalence of anaemia among pregnant women of Chhattisgarh to be 63.1 percent. 71.1 percent prevalence of Anaemia in pregnant women was observed by Balgir et al among population of eastern coast of Odisha and high incidence of anaemia indicating poor maternal and child health care⁽¹²⁾. Tribal women of Jammu, Kashmir and Ladakh region were reported to be under nourished (Khan & Khan, 2012) BMI and calorie intake was also low. 49 percent of women were categorized as anaemic and 36 percent of the women were found to be malnourished⁽¹³⁾. Malnutrition and anaemia was reported to be common among the Paniya tribe of Wayanad district of Kerala⁽¹⁴⁾. 41 percent of tribal women of Jharkhand have a BMI less than 18.5 Kg/m² and were observed to have high

Studied Population	Prevalence of anaemia (In Percent)
NHFS-3 among ST of India [22]	68.5
Karnataka [22]	51
North Indian tribe Assam [16]	59.82
Arunachal Pradesh [16]	53.77
Tripura [16]	57.45
Tribal women [17]	95.3
Jenukuruba Primitive tribe Mysore [18]	77.1
Bhuyan & Khariya tribe of Odisha (Balgir, Mishra, & Murmu, 2003)	89.9
Chhattisgarh women [11]	57.6
Chhattisgarh women Pregnant women 2005-6 [11]	63.1
Choukhtia Bhunjia tribal Lactating women [20]	90.00
Choukhtia Bhunjia tribal Pregnant women [20]	85.72
Present Study Lactating women (Bhunjia Tribe)	90.17
Present Study Pregnant women (Bhunjia Tribe)	87.76

prevalence of anaemia⁽¹⁵⁾. Prevalence of anaemia was reported to be very high in tribal population by many other investigators viz. 59.82 among the north Indian tribe of Assam and 53.77 among Arunachal Pradesh, 57.45 among the women of Tripura⁽¹⁶⁾. Joshi 2011 reported a very high prevalence of anaemia among the tribal women⁽¹⁷⁾. Jai Prabhakar & Gangadhar, 2009 also reported 77.1 percent prevalence of anaemia among Jenukuruba tribe of Mysore⁽¹⁸⁾.

Balgir, Mishra & Murmu, 2003 however reported 89.9 prevalence of anaemia among the Bhuiyan and Khariya tribe of Orissa⁽¹⁹⁾. The prevalence of anaemia was observed to be very high among Choukhtia Bhunjia of Chhattisgarh i.e. 90percent in lactating women and 85.72 percent in pregnant women⁽²⁰⁾. The present study showed a very high prevalence of anaemia among the Bhunjia lactating (90.34%) and pregnant (87.76%) women which is considered to be the highest prevalence of anaemia among women who were underweight. The linear regression for haemoglobin also showed that increase in BMI increased haemoglobin as reported by Shrinivasa et al⁽²¹⁾.

Conclusion :

A great proportion of Bhunjia women were severely anaemic (20.81) lactating to the reproductive age group were found to be anaemic. The overall nutritional status of these women as assessed by their BMI belonged to the undernourished category. Culturally acceptable strategies must be devised for improving the nutritional status of Bhunjias of Chhattisgarh. The low BMI and anaemia may be due to macronutrient and micronutrient deficiency therefore an approach to tackle the issue of malnutrition should be made for the Bhunjia of Chhattisgarh. To achieve holistic development of Bhunjias interventional programmes for improving the health status of Bhunjias have to be significantly improved.

Recommendation :

The low level of Hb could be avoided with the help of good antenatal, intranatal and post natal care and improvement in health care delivery system. The fact should be brought to light for planning appropriate nutritional interventions for the upliftment of health status of Bhunjia women of Chhattisgarh.

Relevance of The Study :

The present study highlighted parlous situation of anaemia among Bhunjia tribal women of Chhattisgarh.

Authors Contribution :

Both authors have contributed significantly in this field.

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Pre School Education imparted at the Anganwadi Centres of villages Mirjapur and Kankutia of Birbhum, West Bengal : A Case Study

*This paper examines the quality and regularity of the Pre School Education (PSE) imparted at two villages of Birbhum, West Bengal. 147 children and their parents, 7 AWWs and helpers are selected by using Purposive Sampling Method and interviewed with help of structured and non structured questionnaire. It is found that 44.21% students are irregular students. The causes of irregularity are admission to private schools, having single parents, going to relative's home, illness, disliking for attending the PSE. In conclusion it is suggested that the quality of PSE needs to be improved. **Key Words** : Anganwadi Centre, Pre School Education, quality of PSE, irregularities of students at Anganwadi Centres.*

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Introduction :

The Anganwadi centres impart Pre School education among the children. These are working towards the mission of fulfilling the nutritional and educational need of the children of 0- 5 years and are the part of the ICDS Programme of the Government of India. UNICEF has put emphasis on pre school education. This paper attempts to examine the quality of education and regularity of the enrolled children at the Anganwadi centres of the villages (Mirjapur and Kankutia) adjacent to Bolpur, Birbhum.

Study Area and Population :

The villages Mirjapur and Kankutia selected for the field study are well connected with Bolpur (the nearest town) by bus. The villages are situated under the Raipur-Supur Village Panchayat area under Bolpur Sriniketan Block. In the villages almost 80% population belongs to the ST and SC community. 13.60% population is Hindu and 6.95 % population is Muslim. Majority of the villagers are poor people having annual family income rs. (30,000/- to 80,000/-). Mostly, they are daily wage earners.

Methods :

Both primary and as well as secondary data are used in this paper. Secondary data are collected from various books, journals, online sites etc. Primary data also have been collected through Interview Method. 140 families (to which PSE students belong) with population 572 have been selected using Purposive Sampling Method. Among them 80 S.T. families with population 330, 45 S.C. families with population 182, 10 Hindu (General) families with

population 38 and 5 Muslim families with population 22 belong. The parents of 147 PSE students (142 fathers and 147 mothers), 147 students, 7 AWWs and helpers are chosen at the next stage by using the purposive sampling method and interviewed with both structured and non structured questionnaires. Statistical analysis is done.

Result and Discussion :

Among total 344 children, 147(42.73%) children are students. Among them highest number of students i.e. 85 (57.82%) students belong to the category of the S.T. and 47 (31.97%) students belong to S.C. category. 10(6.80%) students belong to the category of Hindu (General) and 5(3.40%) students belong to the Muslim category. So, majority of the students belong to the ST and SC i.e. backward communities.

Attendance of the Students at the Centres :

Total 147 students are enrolled at the Anganwadi centres. But all the students do not take pre primary education at the centres. The table below shows the total scenario of the attendance of the students of the Anganwadi Centres at the study area.

Table 1: Attendance of Students at the Anganwadi Centres

No. of AWCs providing Pre-school Education	No. of 3-5 Years children enrolled for Pre-school Education (%)	No. of 3-5 Years Children attended PSE for at least 16 days in the month (except the harvesting and sowing season) (%)	Irregular /absent students (No. of 3-5 Years Children who do not attend PSE for at least 16 days in the month)(%)
07	147(100)	82(55.78)	65(44.21)

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Causes for not attending the PSE at Anganwadi Centres:

Most of the children (50.76%) who do not take PSE at the centre are enrolled to the private schools. 7 (63.63%) S.T. boys 14(73.68%) S.T. girls, 4 (30.76%) S.C. boys, 2(18.18%) S.C. girls, 3(100%) Hindu (General) boy, 2(100%) Hindu (General) category girl students, 1(33.33%) Muslim girl read at private School. The guardians of these children admit that they feel that the quality of imparted education is better at the private schools than that of the government sponsored Anganwadi Centres. During harvesting and sowing season almost all the Santal and Scheduled Caste students do not come to the school. This is a major problem with these students. The Santal children face problems regarding the medium of instruction as they speak in Santali at home and have to learn through the medium of Bengali at centres. One Santal boy (9.09%) is a neurotic patient. The AWW does not have the training to teach such students. So, the boy does not take part in the teaching learning process. 4 S.T. (13.33 %), 4 S.C. (16.66 %), 2 (3.33 %) Muslim students do not go to the centre for learning as they do not like to take education at the centre. Their guardians are indifferent to the educational benefit of their children. 5 of these guardians are widow mothers. That proves that the Single parent ship has an adverse effect towards the education of the children. Among the Muslims there is a tendency to go to the relative's home. 3 (50%) children among this category do not attend the centre for that reason. This proves the negligence towards study is seen among this category.

Quality of Non formal pre school education imparted at the Anganwadi centres :

The regular students can count 1-100, can read and write the Bengali and English alphabets, can act and recite the Bengali rhymes, can name the common fruits or flowers in English, can name the common shapes like rectangle or circle. The students are taught to be socialised at the beginning of the teaching. As a result at almost every centre students bid "Good Morning" to a visitor.

Conclusion :

Though some of the children get admitted to private schools the quality of PSE at the Anganwadi Centres are good. The regular students have the expected progress. It is seen that the progress of a student would be far better when her mother can teach her. But the mothers(65% are the daily labours, 7.48% work at unorganized Sectors, 3.48% work as labour in a factory) of the villages are generally poor and daily wage earners who cannot take care of their children at home regarding taking education(only 23.12% mothers are housewives.). More than 60% of women are mere literate and only can sign their name. They cannot teach the wards. For that reason, the work of the AWWs becomes very tough. The guardians who are service holders do not send their wards to the Anganwadi centres for PSE, rather they send the children to the private school specially English Medium

Schools affiliated to the Central Boards like CBSE . No gender biasness is found regarding this matter. The children of the widow mothers are very irregular. Government officials should pay more attention to improve the quality of education imparted at the Anganwadi Centres.

Abbreviations :

- (1) S.T. : Scheduled Tribe
- (2) S.C. : Scheduled Caste
- (3) AWW : Anganwadi Worker
- (4) PSE : Pre School Education
- (5) UNICEF : United Nation International Children's Emergency Fund
- (6) ICDS : Integrated Child Development Scheme
- (7) CBSE : Central Board of Secondary Education

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