TRENDS AND DETERMINANTS IMPACT OF ECOLOGICAL CONDITIONS ON HEALTH STATUS AMONG THE BAIGAS OF MANDLA (INDIA)

Arun K. Jain

Department of Anthropology, G.G.U. Bilaspur (INDIA)

E-mail : arun_raj_jain@yahoo.com

Received October 20,2007 *Accepted March 20,2008*

ABSTRACT

Man lived in relatively small isolated groups in varying ecological surroundings; and did not disturb the prevailing eco-system. In the vicinity of human settlements there existed a bond between certain faunal and floral species which was always mediated by humans causing some species to perish while other survived. The relation between resources and population was always variable as some human settlements were characterized by an abundance of resources, while others remained poor and hostile, these forcing humans to migrate to other congenial areas. The objective of the present paper is to study the ecology and health status among the Baigas of Mandla district (M.P.), India. The present investigation is based on interviews of 400 Baiga households from five different blocks of Mandla district. Mandla district is located in the east central part of the Madhya Pradesh. It lies between the latitude 220.2' and 230.22' north and longitude 800.18' and 810.50' east. There total area of the district is 13,269 Sq. Km. The block and villages were selected randomly as per the concentration of blocks. In this regard 100 samples were selected randomly from the five villages of each block and approximately 20 samples were selected randomly from each village. The data were collected from the households of the Baigas of Mandla district, Madhya Pradesh. One sample was collected randomly from each household of randomly selected villages. The present study has been conducted through interview schedule. Simultaneously, group discussions and informal interview methods has been used. Observations have been conducted through semi-participants methods. In all, it could be concluded that ecological condition through inhabitants is of an average degree. The main source of drinking water is well and other source (ponds and rivers), but this sources is not satisfactory scientific point of view. The reason for this is unawareness regarding the hygienic conditions and also some of the traditional believes and values or superstitions. The natural ecological condition is quite good, but practices related to ecological uses are not good, so there are urgent need to aware them from various ecological points of view because ecological determinant plays an important role to determining the health status.

Key Words : Ecological condition, Baiga, Congenial areas, Eco-systems

INTRODUCTION

India is a homeland of more than 400 tribal communities who live in different ecology set up with different socio-cultural and techno-economic behavior. Almost 80 per cent of the tribal communities live in forest environment.[1-3] It had been noted by many that tribal communities living in forest ecosystem, have over all better health status than the communities living in the forest free areas. It is true that in the food gathering societies, when

compared do men and women collect more food items which are having high nutritious value. Health status of an individual community depends on several factors viz; ecological condition, house type, sanitary habits, way of life style, economic status and food and nutrition etc.[10]

There is a general agreement that the health status of the tribal population in India is very poor.[1-3,5-7,9,11]

The term ecology was used for the first time by *Reister* in 1868, although Heackel first gave substance to this term in 1869. The word of ecology was derived by combining two Greek words "*oikos*" (meaning house or dwelling) and "logos" (meaning study or discourse). Thus ecology is the study of relationship of organism with their *tiouse*' or more broadly the 'environment'. Further, ecology is concerned with the biology of group's of organism and with the functional processes on the land, in the oceans and in fresh waters.

Man lived in relatively small isolated groups in varying ecological surroundings; and did not disturb the prevailing eco-system. In the vicinity of human settlements there existed a bond between certain faunal and floral species which was always mediated by humans causing some species to perish while other survived. The relation between resources and population was always variable as some human settlements were characterized by an abundance of resources, while others remained poor and hostile, these forcing humans to migrate to other congenial areas.

As resources available to different human societies are available, they exhibit variation, "due to differences in geographical environment, technical equipment and what may be called the historically determined perception of the exploitable environment".

Baiga know the variety of trees, their seasons, fruits, flowers, barks, stems, roots, fiber, time of flowering and shedding leaves, use of flower, roots, bark, and the nature of birds and animals found around it. Their knowledge is also extensive about bushes, herb, climbers and foliages and the use that can be made them.

Thus, living in isolation and in inaccessible areas and in close contact with the forests, Baigas have developed a good command over their knowledge and resources of forests. So vast is their knowledge and so great is its impact on the other ethnic communities that the Baigas are consulted on all matters relating to forests, its pathways and by ways and have come to be regarded 'the medicate community' and the Wiseman of the forests in the entire region. They have mystified their knowledge about the forest herbs and have become known as magico-religious healers as well. Indeed in the entire region, the performance of magico-religious rites has been institutionalized and there is a *guniya* in every *Baiga* village to perform this task.

We have observed that ecology is not a homogenous blanket concept. The *Baiga* tribe infect, divide the environment in such a way that there is apparently no conflict with the other ethnic communities in exploiting the environmental resources. In other words, there is a social division of ecology and it stands differentially to different ethnic groups through seemingly sharing the some physically ecology but nonetheless this division is socially determined according to their traditional skills of exploitation of the natural resources.[4]

The important aspect of relationship between ecology and health is the nature of activities performed by the *Baiga* tribe and the conditions under which they work. That is, how far are the conditions of work and the nature of activities linked with the environment and prone the certain types of aliment? Traditionally, the Baigas were known for *webar* cultivation like most other primitive tribes of India. But, present time maximum Baigas involve in regular cultivation. The conditions of work have been very hard and hazards of working very great, thick and extensive forest full of wild

animals that poses great threat; harsh and biting cold winter; and dreaded monsoon. All these had to be suitably met to survive and to continue to exist. The Baigas, however consider monsoon as the source of disease and ill-health that makes forest a stronghold of mosquitoes, even deadly mosquitoes that generated cerebral malaria that took great tolls of human life. Furthermore, it was also a source of population of water and forest food that became the source of cholera, plague and diarrhea. They say we could meet the challenge of drought but to survives, not simply to maintain health, the monsoon and its dangerous effects was always a big challenges.

The *Baiga* tribe and forest are not in simple symbiotic relationship, the Baigas are entirely dependent on forest resources and for their labour it is the object of work. This is how they incorporate ecology within their self and would always maintain a balance between their collective appropriation, subsistence needs, and the health and forest.

Having seen how ecology influences habitation, diet and conditions of work, it would be relevant to look into the cultural parameters of health and how certain customs of the *Baiga* tribe prevent certain ailments through ecological influences.

The Baigas are said to have two-fold approach to health, disease and ailments. That is, a preventive system or more particularly the cultural health approach and secondly the diagnosis and curative system through the natural herbs and religio-magic approach to difficult and complicated ailments.

I have discussed in this section ecology plays an important, indeed dominant, role in creating structures of health arid prosperity. The ecology, however, is not a homogenous blanket concept. The *Baiga* community sharing a common ecology, infect, segment the ecology according to their traditional skills of exploitation and thus create differential structures of health.

The objective of the present paper is to study the ecology and health status among the Baigas of Mandla district (M.P.), India.[5-7]

MATERIAL AND METHODS

The present investigation is based on interviews of 400 *Baiga* households from five different blocks of Mandla district. Mandla district is located in the east central part of the Madhya Pradesh. It lies between the latitude 220.2' and 230.22' north and longitude 800.18' and 810.50' east. There total area of the district is 13,269 Sq. Km. The block and villages were selected randomly as per the concentration of blocks. In this regard 100 samples were selected randomly from the five villages of each block and approximately 20 samples were selected randomly from each village. The data were collected from the households of the Baigas of Mandla district, Madhya Pradesh. One sample was collected randomly from each household of randomly selected villages. The present study has been conducted through interview schedule. Simultaneously, group discussions and informal interview methods has been used. Observations have been conducted through semi-participants methods.[8,9]

RESULTS AND DISCUSSION

The results of the relevant aspects are presented in the following manner:

Here attempt has been made to determine health status on the basis of frequency of morbidity of the Baigas, but, ignored the parasitic disease i.e., malaria etc. Here good health status 0-2 frequency of morbidity in last one year, rather than average health status 3-5 frequency of morbidity and poor health status 6 and above frequency of morbidity. Results are presented in the following manner:

Table 1 shows information regarding trend of health status among the Baigas, it could be seen from the table that the maximum number of *Baiga* poor health status (41.00), rather than average health status (36.00) and good health status (23.00). It could be concluded that more than 50.00 percent population belonging to poor health status.

Table 1 : Trends of health status

S.N.	Status trends of health	Absolute	Percentage
1	Good	92	23
2	Average	144	36
3	Poor	164	41
Total		**400**	**100**

Table 2 shows information regarding sex-wise distribution of health status among the Baigas, it could be seen from the table that the poor health status observed slightly more among males (42.61) as compared to females (39.32). On the other hand average health status reported more or less same among male (35.93) and females (36.14). It could be conduced the table that female's shows slightly better health status as compared males.

Table 2 : Sex wise health status trends of Baigas

S.N.	Health Status	Sex- wise trends		Total
		Male	Female	
1	Good	215	239	454
		-21.46	-24.54	-23
2	Average	360	352	712
		-35.93	-36.14	-36
3	Poor	427	383	810
		-42.61	-39.32	-41
Total		**1002**	**974**	**1976**
		-100	**-100**	**(100.00)**

Table 3 shows information regarding age wise distribution of health status among the Baigas, it could be seen from the table that good health status is reported among those individuals who belong the age group of 11-15 years (30.61), while health status is observed poor among 7-10 years age group (43.96). In the same way the average health is reported among the individuals who belongs the age group of 3-6 years (38.84). It could be concluded from the table that maximum percentage of poor health status is reported among the 7-10 year of age group and good health status observed among 11-15 years of age group. On the basis of above mentioned findings, it may be suggested that 01-10 year age group is the most important segment of the population structure, which suffered more from poor health. Thus district health authorities and related non-government organizations should launch proper programmes related to awareness and immunization and health awareness etc. So, that health status could be uplifted significantly among the Baisas.

Table 4 shows information regarding ecology and health status, it could be seen from the table that maximum number of the Baigas lived in de-foretasted area (52.00) and 48.00 percent Baigas are lived in forestation area. The good health status is reported among those individuals who lived in forested area (26.04),

Table 3 : Age wise health status trends of Baigas

S.N.	Age wise trends	Health Status			Total
		Good	Average	Poor	
1	O-2 years	18	38	42	**98**
		-18.37	-38.78	-42.86	**-100**
2	3-6 years	50	94	98	**242**
		-20.66	-38.84	-40.5	**-100**
3	7-10 years	61	106	131	**298**
		-20.47	-35.57	-43.96	**-100**
4	11-15 years	60	66	70	**196**
		-30.61	-33.67	-35.71	**(10O.OO)**
5	16-20 years	65	73	90	**228**
		-28.51	-32.02	-39.47	**-100**
6	21-55 years	130	253	290	**673**
		-19.32	-37.59	-43.09	**-100**
7	56 years above	70	81	90	**241**
		-20.05	-33.61	-37.34	**-100**
Total		**454**	**712**	**810**	**1976**
		-23	**-36**	**-41**	**(100. 00)**

whereas poor health status is reported among those individuals who lived in de-fore station area (64.63). On the same way the average health status is reported among those individuals who lived in forest area (58.33). It could be concluded from the table that the maximum number of poor health status reported among those who lived in de-forested area. On the basis of above mention findings it may be stated that vegetation plays an important role for determining the health status.

Housing condition

"By improving our house we may improve our health is quite a true concept. It has an important bearing on family life, on the education and the future prospects of the young and in general health" (Hasan, 1967).The Baigas are settled in nuclear

Table 4 : Forestation and health status

S.N.	Health Status	Forest condition		Total
		Forestation	Deforestation	
1	Good	50	42	**92**
		-26.04	-20.19	**-23**
2	Average	112	32 (15.38)	**144**
		-58.33		**-36**
3	Poor	30	134	**164**
		-15.63	-64.63	**-41**
	Total	**192**	**208**	**400**
		-100	**-100**	**-100**

families with separate residence. Most of them living in separated houses, other than that of their further after marriage; however the tendency of living in joint and extended families is also recorded in some cases. Most of the house are found to be single roomed, where as two or more rooms are also seen in some cases. The houses have no windows or ventilators for air and light. The observation related to housing conditions are presented in the following manner:

Table 5 reveals information regarding type of house possessed and health status among the Baigas, it could be seen from the table that the good health status is reported among those individuals who lived in mixed type of house (40.00), whereas health status is found poor among those individuals who lived in kuccha with khappar roof house (49.35). In the same way average health status is reported among those individuals who lived in pakka with half hay and half khappar roof house (41.67). It could be concluded from the table that the maximum percentage of good health status is reported among those individuals lived in mixed type of house and poor health status is reported among those individuals lived in kuccha with khappar roof house. On the basis of above mentioned findings it could be stated that the type of house plays an important role in determining the health status. Which reflect economic status as well as hygienic condition to a certain extent?

Table 5 : Type of house possessed and health status

S.N.	Health status	Type of house					Total
		Kaccha with grass roof	Mixed	Kaccha with khappar roof	Pakka with khappar roof	Pakka with half hay & half khappar roof	
1	Good	32	12	20	25	3	**92**
		-22.86	-40	-12.99	-38.46	-25	**-23**
2	Average	50	10	50	21	5	**144**
		-35.71	-33.33	-32.47	-32.81	-41.67	**(36.00)**
3	Poor	58	8	76	18	4	**164**
		-41.43	(26.67	-49.35	-28.13	-33.33	**(41.00)**
	Total	**140 (10.00)**	**30 (100.00)**	**154 (100.00)**	**64 (100.00)**	**12 (100.00)**	**400 (100,00)**

Table 6 Exhibits information regarding accommodation and health status among the Baigas, it could be seen from the table that the good health status is reported among those individuals who have four rooms in the house (40.00), whereas health status is found poor among those individuals who, possess only one room in the house (44.86). In the same way average health status is reported among those individuals who have three rooms in the house (47.06). It could be concluded from the table that the maximum percentage of average health status is reported among those individuals have three rooms in house. On the basis of above mentioned findings it could be stated that housing condition and housing facility have an important role for determining the health status of any community or individuals.

Table 7 shows information regarding ventilation in the house and health status among the Baigas, it could be seen from the table that the good health status is reported among those individuals who have at least one window in their houses (37.95), whereas health status is found poor among those individuals who, have no any window in the house (51.33). In the

Table 6 : Accommodation and health status

S.N.	Health Status	Accommodation				Total
		One	Two	Three	Four	
1	Good	44	34	10	4	**92**
		-22.56	-23.04	-29.41	-40	**-23**
2	Average	74	51	16	3	**144**
		-34.58	-35.92	-47.06	-30	**-36**
3	Poor	96	57	8	3	**164**
		-44.86	-40.14	-23.53	-30	**-41**
Total		**214**	**142**	**34**	**10**	**400**
		-100	**-100**	**-100**	**-100**	**(100.00)**

same way average health status is reported among those individuals who have no any window in the house (37.17). It could be concluded from the table that the maximum percentage of good health status observed among those individuals who have at least one window in the houses. On the basis of above mentioned findings it could be stated that ventilation or proper housing condition plays an important role for determining the health status.

Water is one of the most important necessary elements for the survival of human beings and other organism. One can not live without water for more than a few days. Much of the ill health in the underdeveloped countries is largely due to lack of safe drinking water. There can be state of positive community health and well without safe water supply. The supply of safe drinking water is indispensable for good health, a decent standard of living and prevention of some of the common physical aliments. At place provision of adequate quantity of pure drinking water has eradicated some common diseases like dysentery, worms, diarrhea etc.

Table 7 : Ventilation and health status

S.N.	Health Status	Ventilation		Total
		Hone	One	
1	Good	26	66	**92**
		-11.5	-37.93	**-23**
2	Average	84	60	**144**
		-37.17	-34.48	**-36**
3	Poor	116	48	**164**
		-51.33	-27.59	**-41**
Total		**226**	**174**	**4OO**
		-100	**-100**	**-100**

Table 8 reveals information regarding source of drinking water and health status among the Baigas, it could be seen from the table that the good health status is reported more among those individuals who used hand pump water (37.10), whereas health status is

found poor among those individuals who used rivers or ponds water etc. (81.58). In the same way average health status is reported among those individuals who used well water (49.67). It could be concluded from the table that the maximum percentage of poor health status observed among those individuals who used rivers, ponds water etc. and good health status observed among those individuals used hand pump water. On the basis of above mentioned findings it could be stated that clean water and health status is directly related to each other.

Table 8 : Source of drinking water and health status

S.N.	Health Status	Source of drinking water				Total
		Well	Hand pump	Well & hand pump	Other source	
1	Good	27	46	17	2	**92**
		-17.65	-37.1	-36.17	-2.63	**-23**
2	Average	76	40	16	12	**144**
		-49.67	-32.26	-34.04	-15.79	**(36.00)**
3	Poor	50	38	14	62	**164**
		-32.68	-30.65	-29.79	-81.58	**-41**
Total		**153**	**124**	**47**	**76**	**400**
		(100.00)	**(100.00)**	**-100**	**-100**	**(100.00)**

Table 9 shows information regarding storage of water in pots and health status among the Baigas, it could be seen from the table that the good health status is reported more among those individuals who used clay pots (25.08), whereas health status is found poor among those individuals who used clay pots (42.12). In the same way average health status is reported more among those individuals who used metal pots (47.19). It could be concluded from the table that the storage of water in pots is not co-related to health status.

Table 9 : Storage of water and health status

S.N.	Health status	Storage of water		Total
		Clay pot	Metal pot	
1	Good	78	14	**92**
		-25.08	-15.73	**-23**
2	Average	102	42	**144**
		-32.8	-47.19	**-36**
3	Poor	131	33	**164**
		-42.12	-37.08	**-41**
Total		**311**	**89**	**400**
		-100	**-100**	**(100.00)**

Table 10 exhibits information regarding source of lighting in the house and health status among the Baigas, it could be seen from the table that the good health status is reported more among those individuals who have electricity for lighting the houses (40.85), whereas health status is found poor among those individuals who have chimney for lighting the house (46.25). In the same way average health status is reported among those individuals who used electricity for lighting the house (36.56). It could be concluded from the table that the maximum percentage of poor health status observed among those individuals who used chimney for lighting and the health status is found good among those individuals who used electricity for lighting the house. On the basis of above mentioned findings it could be stated that source of lighting plays an important role for determining the health status. It reflects the adequacy of basic amenities.

Table 10 : Source of lighting and health status

S.N.	Health status	Source of lighting			Total
		Lamp	Chimney	Electricity	
1	Good	28	28	36	**92**
		-18.67	-17.5	-40	**-23**
2	Average	54	58	32	**144**
		-36	-36.25	-35.56	**(36.00}**
3	Poor	68	74	22	**164**
		-45.33	-46.25	-24.44	**(41. OO)**
Total		**ISO**	**160**	**90**	**4OO**
		(100.00)	**(100.001**	**(22.501**	**-100**

Table 11 shows information regarding proper exit of smoke in the house and health status among the Baigas, it could be seen from the table that the good health status is reported among those individuals who used wood (25.53), whereas health status is found poor among those individuals who have used kerosene (53.85). In the same way average health status is reported among those individuals who have used wood (36.36). It could be concluded from the table that the maximum percentage of poor health status observed among those individuals who have used kerosene and good health status is reported among those individuals who have provision to used wood.

Table 11 : Fuel used and health status

S.N.	Health status	Fuel		Total
		Wood	Kerosene	
1	Good	88	4	**92**
		-25.53	-15.38	**-23**
2	Average	136	8	**144**
		-36.36	-30.77	**-36**
3	Poor	150	14	**164**
		-40.11	-53.85	**-41**
Total		**374**	**26**	**400**
		-93.5	**-6.5**	**-100**

Table 12 shows information regarding exit of smoke and health status among the Baigas, it could be seen from the table that the good health status is reported among those who have provision for smoke exit in their houses (40.91), whereas health status is found poor among those individuals who have no any provision for smoke exit in their houses (42.70). In the same way average health status is reported among those individuals who have no any provision for smoke exit in their houses (36.52). It could be concluded from the table that the maximum percentage of poor health status observed among those individuals who have no any provision for smoke exit in their houses and health status is found good among those individuals who have provision for smoke exit in their houses. On the basis of above mentioned findings, it could be stated that the exit of smoke in their house plays an important role for determining the health status.

Table 12 : Exit of smoke and health status

S.N.	Health status	Exit of smoke provision		Total
		provision for smoke exit	Not provision for smoke exit	
1	Good	18	74	**92**
		-40.91	-20.79	**-23**
2	Average	14	130	**144**
		-31.82	-36.52	**-36**
3	Poor	12	152	**164**
		-27.27	-42.7	**-41**
Total		**44**	**356**	**400**
		-100	**-100**	**-100**

CONCLUSION

On the basis of above cited findings and discussion, it may be concluded that:

1. The good health status is reported more among those individuals who lived in forested area (26.04), whereas poor health status is reported among those individuals who lived in de-forestation are as (64.63).
2. The good health status is reported more among those individuals who lived in mixed type of house (40.00), whereas health status is found poor among those individuals who lived in kuccha with khappar roof house (49.35),
3. The good health status is reported more among those individuals who have four rooms in house (40.00), whereas health status is found poor among those individuals who possess only one room in the house (44.86).
4. The good health status is reported more among those individuals who have at least one window in their houses (37.95), whereas health status is found poor among those individuals who have no any window in the house (51.33).
5. The good health status is reported more among those individuals who used hand pump water (37.10), whereas health status is found poor among those individuals who used rivers or ponds water etc. (81.58).
6. The good health status is reported more among those individuals who have,used clay pots (25.08), whereas health status is found poor among those individuals who have used clay pots (42.12).
7. The good health status is reported more among those individuals who have used electricity for lighting in their houses (40.85), whereas health status is found poor among

those individuals who have used chimney for lighting the house (46.25).

8. The good health status is reported more among those individuals who have provision of smoke exit in their houses (40.91), whereas health status is found poor among those individuals who have used kerosene (53.85).
9. The good health status is reported among those who have provision for smoke exit in their houses (40.91), whereas health status is found poor among those individuals who have not provision for smoke exit in their houses (42.70).

It could be stated that, more than 50 percent Baiga population belong to poor health status. There is slight variation in sex-wise health status. The maximum percentage of poor health status is reported among the 0-2 year age group. In all, it could be concluded that ecological condition through inhabitants is of an average degree. The main source of drinking water is well and other source (ponds and rivers), but this sources is not satisfactory scientific point of view. The reason for this is unawareness regarding the hygienic conditions and also some of the traditional believes and values or superstitions. The natural ecological condition is quite good, but practices related to ecological uses are not good, so there are urgent need to aware them from various ecological points of view because ecological determinant plays an important role to determining the health status.

REFERENCES

1. Basu A, Anthropological Approach to Tribal Health in Tribal Demography and Development in Northeast India, Edited by Ashis Bose, Tiplut Nongbri and Nikhilesh Kumar B.R., *Publishing Corporation, Delhi* **(1990)**.
2. Chaudhery B. D., Cultural Dimensions of Health: A Study of West Bangal Villages, Tribal Health: Socio-Cultural Dimension, Ed. By Choudhary B.D., *Inter India Publications, New Delhi,* 289-301, **(1986)**.
3. Duraisamy P., Health Status and Curative Health Care in Rural-India, Working Paper Series 78, National council of applied Economics Research, New Delhi **(2001)**.
4. Elvin V., The Baiga, Johan Mure, London Gyan Publication, New Delhi **(1939)**.
5. Heque M., Height, Weight and Nutrition among the Six Tribes in India, In Cultural and Environmental Dimension on Health, Inter India Publications, New Delhi **(1990)**.
6. Mahapatra D. and Das J., Nutritional Ecosystems of Orrisa Tribals, In cultural and Environmental Dimensions on Health, Ed. By, B. D. Choudhary, Inter India Publications, New Delhi **(1990)**.
7. Mukherjee B. M., Ageing Members and their Health in Changing Techno-Economic Condition, Tribal Health: Socio-Cultural Dimension, Ed. By Chaudhary B. D, Inter India Publications, New Delhi, 99-110, **(1986)**.
8. Rizvi S.N.H., Health Practices of the Jaunsaris a Socio-cultural Analysis, in Tribal Health: So cio-cultural Dimensions, Edited By Buddhadeb Chaudhuri, Inter-India Publications, New Delhi **(1986)**.
9. Rizvi S.N.H., Medical Anthropology of the Jaun Saris Northern Book Centre, New Delhi **(1991)**.
10. Sahani R.K., Nutritional and Health Status of the Jarwas, *Journal of Anthropological Survey of India,* 52, 47-65, **(2003**).
11. Swain S., Jena S.C. and Singh P., Morbidity Status of the Khonda Tribes of Phulabani, Orrisa, In Cultural and Environmental Dimension on Health, Ed. By Choudhary B.D. *Inter India Publications, New Delhi.* **(1990)**.

●●●●●