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Research Article

Health: Cognition and Threshold among the Oraon Tea Garden Labourers of Jalpaiguri District, West Bengal

Subrata K. Roy,[1] Sujata Kar Chakraborty,[2] and Arupendra Mozumdar[3]

[1] *Biological Anthropology Unit, Indian Statistical Institute, 203 B.T. Road, Kolkata 700 108, India*
[2] *CINIYUVA, Child in Need Institute (CINI), Golpark, Kolkata 700029, India*
[3] *Population Council, 42 Golf Links, 1st Floor, New Delhi 110003, India*

Correspondence should be addressed to Subrata K. Roy; rsubrata@isical.ac.in

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There is scarcity of health information in many subpopulations in India, which needs to be explored for formulating effective public health policy. Studies on the tea garden population revealed that poor socioeconomic conditions, ignorance due to illiteracy, culture and food habit, overcrowding, and unhygienic living conditions make the population vulnerable to various communicable and noncommunicable diseases and malnutrition. Data were collected from the labourers of Birpara and Dalgaon tea gardens of Jalpaiguri district, West Bengal. The objective was to identify the primary health care available vis-à-vis the health problems. The results were based on mortality data, subjective well-being, frequency of ailment symptoms, perceived health status, and selected health practices as well as some observations, which indicate their cognition and threshold regarding health problems, presented as case studies. Mortality rates were high in the population; comparative mortality data shows no considerable change in mortality rate over time and space. A very high frequency of anaemia was prevalent among females along with sore throat and abdominal pain. Perceived health status of most of the people was good, although that was not always true, because the perception of the people often depends on their threshold and cognition about health and disease.

1. Introduction

It is well known that the tea is an important agroindustry of West Bengal and Assam in Eastern India, which holds a considerable potential for the economic development, as it earns substantial foreign exchange and provides employment to a large number of unskilled labourers in India [1]. Tea industry opened up new occupations and exercised a considerable influence on the socioeconomic life of the people.

It has been revealed from many studies that poor socioeconomic conditions, ignorance due to illiteracy, overcrowding, and unhygienic living conditions in the residential colonies make tea garden population vulnerable to various communicable diseases and malnutrition. Scattered reports indicate higher prevalence of undernutrition and infectious conditions like filariasis in this population [2–6]. A recent study showed that NCDs (noncommunicable diseases) like hypertension is emerging as an important public health problem among them, which may be partly due to the excessive use of alcohol and tobacco [7]. There are also other health problems, which are related to their occupation.

Roy [8] reported that though the individuals of the tea gardens feel ill (sometimes they do not feel ill despite having the illness), the society does not permit them to become sick (in the tea garden the term "sick" carries some special meaning that the sick individual has the liberty to enjoy leave with 80% of pay provided the tea garden doctor considers the individual sick). Furthermore, people do not like to go to the hospital for ailments like fever, stomach pain, or problems like cough and cold, skin diseases, and other minor ailments. Actually, tea garden labourers work hard in a harsh environment to meet their basic needs and health is not always their first priority. The first priority is to earn for food and shelter.

It is worthwhile to define some of the terms, which have been used in the present paper. Primary health care denotes essential health care based on practical, scientifically sound, culturally appropriate, and socially acceptable methods.

It is universally accessible to people in their communities, involves community participation, is integral to, and a central function of the country's health system, and is the first level of contact with the health system. It includes family planning, clean water supply, sanitation, immunization, and nutrition education that are designed to be affordable for both the poor people who receive the services and the governments that provide them; the emphasis is on preventing disease as well as curing it [9].Cognition is a mental function such as the ability to think, or being aware of thoughts or perceptions, including understanding and reasoning [10–12]. Threshold indicates the starting point for a new state or experience, which is considered to be the smallest detectable sensation [13, 14]. In other words, threshold is that point of the discomfort that triggers any act to get away from the discomfort or smooth it out. The definition can be easily understood with the following example. The "normal" body temperature of human is considered as 98.6 F; however it varies across individuals. So if somebody's temperature falls within a range of say +/−1 F of 98.6 it is considered as "normal" and the person does not feel either "fever" or hypothermia, because the temperature is well within the threshold. However, if the temperature raises up to 100 or 101 F many people may feel that they have fever. They will start looking for medicine or will visit a doctor to consult but may not stop going to work. This is because the temperature is high enough to trigger a treatment seeking behaviour but have not crossed the threshold for stopping work. If the temperature rises up to 102 or higher, the person may seek an admission to a hospital and with a great certainty will not go to work.

Reliable information on health problems of a population is an essential prerequisite for formulating health care system to address health needs. Various sociodemographic factors, nutritional improvement, improvement in health infrastructures including eradication, elimination, and control of major communicable diseases are mainly contributing to a health transition and disease pattern in India, where communicable and deficiency diseases are gradually receding while noncommunicable diseases (NCDs) are escalating. However, among the poor socio-economic groups, the pace of epidemiological transition is slow, where communicable diseases and undernutrition are still the major causes of disease burden [15–17]. India is a vast country and variation occurs in the disease pattern due to the socio-economic gradient and other factors. There is scarcity of health information in many subpopulations in India, which needs to be explored for formulating effective public health policy.

The information available on primary health care and problems of the tea garden labourers are not adequate for public health planning. The present paper is a part of a large bio-medical survey conducted among the tea garden labourers of Birpara and Dalgaon tea gardens of Jalpaiguri district, West Bengal. The objective of the present paper is to identify the primary health care available to the people vis-à-vis the health problems. The findings will allow discussing their cognition and threshold regarding health problems against the backdrop of their socio-economic condition and lifestyles, which will have important public health implication.

2. Materials and Methods

Data were collected as a part of a biomedical project to assess the health status of the tea garden labourers belonging to the Oraon group from the Birpara Tea Garden and Dalgaon Tea Estate in the Jalpaiguri district of northern West Bengal. Data were collected on demography, morbidity pattern, nutrition and diet intake, physical activity, anthropometry, lung function, blood pressure, and haematometry. For each kind of data, sample sizes varied. Morbidity data were collected from 206 males and 294 females. Details of all other kinds of data were published elsewhere [18, 19]. No statistical sampling of the individuals has been done because of some difficulties in the field such as suspicion against selection of individuals for better medical or other social benefits by agreeing to participate in the study. But the participants were chosen without any conscious bias; actually the participants who could be persuaded to participate in the study and volunteered for participation in the study were included in the sample.

The Oraons are numerically dominant in the Jalpaiguri district and they are predominantly a larger group in most of the tea gardens in the district as well. Oraons are well known for their efficiency as tea garden labourers because tea garden authorities used to prefer Oraons than the locals, because local people used to suffer from malaria very frequently, which hampers the work of the tea gardens. Oraons are supposed to be the inhabitants of Chotonagpur and Santal parganas of Bihar (presently Jharkhand State); they were brought into this area by the labour contractors as labourers in different industrial sectors (especially in the tea gardens) at the end of the last century [1]. Linguistically the Oraons belong to the Kurukh or Dravidian speaking group [20]. The study was restricted to an endogamous and single ethnic group—the Oraons.

The tea gardens are situated in the northeastern part of the Jalpaiguri district, which forms the foothill belt of the Himalayas, where the elevation gradually increases from the alluvial plain to about 2000 meters and above. Owing to the proximity to the hills, the rainfall is heavy and the temperature is excessively high. The atmosphere is highly humid throughout the year. Usually tea garden authorities engage all adult members (both sexes) of a simple family in the garden work and each individual labourer gets an average monthly payment of Rs. 1200/= (U.S $20 approximately) plus food grains at subsidized rates. Beside these, the labourers are also provided with free housing, piped water, free medical facilities for family members and education facilities for children up to primary level. According to census 1991 [21], the literacy rate of Jalpaiguri district was 56% for males and 33% for females but in the tea gardens the literacy rate was too low (18% and 7%, resp.).

The results of the present study are based on the following kinds of data: morbidity pattern, perceived health status or subjective well-being, selected health practices, and some qualitative observations on cognition and threshold of health status of the participants, presented here as case studies. All these data were collected among the adult members (≥18 years of age) of the sample using the pretested questionnaires

from earlier studies by the first author [8, 22–25] Data on morbidity pattern included self-reported frequency of ailment symptoms in last three months among and were collected along with other demographic parameters [26]. Data on perceived health status or subjective well-being were measured by asking the adult participants to rate their current state of well-being into a five scale rating: "very good," "good," "fair," "bad," and "very bad". The question followed by some additional questions on why they perceive their health-status as reported. Because there is hardly any objective method to measure cognition and threshold of perceived health status, the observations (case number) were presented here as supporting data; those were several incidents observed by the first author throughout the field work of 10 years among the study population.

All data for this study were collected by doing fieldwork at different spells throughout the year between 1982 and 1992. The ethical committee of the first author's institution reviewed all the aspects of scientific research involving human subjects. The blood samples for the larger biosocial study were collected after verbal consent form the adult participants and their family members using finger prick; no residual blood samples were stored for any future use.

3. Results

It would be worth to mention some background information regarding medical facilities available to the labourers of the Tea garden. tea garden labourers get free medical facilities from the hospital of the respective tea garden for their family. Each tea garden has a small hospital of its own, which is generally run by one doctor and few assistants irrespective of labourer strength of the garden. Some observations had been made during 3 and 1/2 years stay at the Birpara Tea Garden Hospital: (1) to an outsider Tea Garden Hospital atmosphere was very beautiful, with a well maintained flower garden where a variety of seasonal flowers were always refreshing the hospital atmosphere, hospital rooms, beds, and surroundings were very clean unlike other PHC (Primary Health Centre) or BPHC (Block Primary Health Centre) or city hospitals in India. (2) Generally no patients were allowed to become admitted in the beds of the hospital to keep the hospital clean and to avoid burden of care like food and nursing; all the patients were treated as outdoor patients irrespective of seriousness of the disease. (3) In most of the cases, the doctor used to listen to the problem of the patient(s) for a moment and was used to prescribe on a very small piece of paper without any physical examination. (4) The medication (e.g., tablet, syrup, etc.) was always followed by an injection. The syringe and needle were generally cleaned/disinfected once in the morning with boiling water and the same was used throughout the day. Most of the times the assistants used to draw a large amount of medicine in the syringe and was used to inject the patients one after another to at least 4-5 individuals simultaneously without proper cleaning or changing the needle. (5) Pharmacist (*Compounder*) (the person who used to assist the doctor and prepare medicine) used to prepare some kind of syrup with some formulation mixed with a huge amount of water; two types of syrup was available: light pink and light black; most of the patients had been given any one kind of that syrup irrespective of the disease or illness. (6) There was another clinic of the garden, which was situated 3 km away from the hospital and was run by the pharmacist (*Compounder*) supported by an assistant. (7) Most of the assistants had education up to primary level and some of them used to move around the labourer lines in order to see patients, who were incapacitated to move to the hospital or clinic for treatment. (8) It is generally known that most of the antibiotic medicine has some specific dose, which had never been maintained.

This was the picture of the treatment provided by the tea garden authorities to the labourers, but there was exception, that the official staffs and managerial staffs used to get proper treatment.

Now, it would be better to clarify some points through some specific cases.

Case Number 1. A middle-aged woman whose age was around 40 years, found to suffer from acute tuberculosis; she refused to participate in our spirometric survey, where maximum forced expiratory volume was required to be measured. The refusal was caused by the knowledge that she was suffering from tuberculosis and might cough fresh blood during forced expiration. She visited Tea Garden Hospital 2-3 times and little medicines had been given to her each time but the doctor did not consider her as sick because sick means that the sick individual has the liberty to enjoy leave with 80% of pay. Ultimately, she died after a year or so. Doctor said that full dose of the medicines is never handed over to the patient (labourer) because labourers have the habit of consuming 3-4 tablets at a time assuming quick recovery, sometimes all at a time, and sometimes their small children consume tablets; it creates severe problem.

Case Number 2. Generally, no childbirth had taken place in the hospital, although a number of childbirth occurred during that time at their respective homes with the help of local untrained midwives of the labourer line. Generally, the birthplace used to be in an unhygienic corner of their kitchen. Most of the pregnant women of the labourer line were asked for antitetanus doses, but no woman used to complete the doses, because of ignorance, pain due to injection, and so forth. Sometimes they were given a packet containing 100 iron (iron with folic acid) tablets but only 2-3 tablets were consumed and rest of the tablets were thrown away because it causes constipation. People do not prefer to come to hospital for mere childbirth. Neonatal and postnatal cares were far beyond expectation of the newborn mothers except stipulated leave. The obvious and resultant effect was that the newborn used to be small and weak; therefore, infant mortality rate was high. In case of birth complication sometimes the mothers also die. In case of diarrhoea of the newborn, many parents of the labourer family did not think their babies were seriously ill even if they were slowly dying from dysentery. Dehydration was not associated with diarrhoea nor was it considered to be life threatening. Most of the parents tried to avoid seeking treatment from Tea Garden hospital. They used to consult with local herbalist and black

magician (*ojha*) (*as well as religious practitioner, who performs some ritual for driving out evil demons or spirits from places, persons, or things in which they are thought to dwell*) and sometimes used to go to garden hospital if their children were very ill or had developed a physical disability.

Case Number 3. No labourers irrespective of age and sex were willing to visit doctor or hospital in case of minor ailments like fever, headache, stomach problem, cough and cold, skin diseases, and so on. Those ailments were not considered by them as disease, because the doctor would not allow them to get sick (leave with 80% pay) for these ailments. When they become incapacitated or unable to do any work, then it was considered to be a disease. The cognition of disease of the tea garden labourer revolves around the concept of sickness concept of the tea garden. Although, in general sickness refers to disease and/or illness and may be defined as a process with worrisome behavioural and biological signs, particularly one that originates in a disease and is given socially recognizable meanings. Therefore, sickness is a process for socializing disease [27]. Any kind of disease (diagnosed or undiagnosed), curable or noncurable, was accepted by them very casually, even if it was a cancer or something equally serious.

Case Number 4. One day it was surprising to see a male patient (age around 50 years) admitted to "infectious disease block" of the Tea Garden Hospital. It was heard that the patient was suffering from a severe problem of kidney failure. In the evening, the patient was missing, the doctor was very angry, and then the night guard (*Choukidar*) of the hospital informed that the patient had gone to see video films in the market place. At late night, the patient returned to the hospital and survived for a day.

Case Number 5. During health survey, the blood pressure measurement was taken of a man (aged around 57), it was found that the systolic and diastolic blood pressure was 184 mm-Hg and 140 mm-Hg, and he was advised to visit doctor immediately and take rest. He did not understand as to why such measurement is harmful for his health and went away for consuming country liquor. Next day, we heard that the man died last night with severe heart arrest.

Case Number 6. During the survey, once we noticed that a Black magician (*Ojha*) (of the same community) was arranging to make some performances in the courtyard of a home. We came to know from our guide that an unmarried woman (aged around 20) of that house was not experiencing her monthly periods for the last 4-5 months and she was not pregnant (reported by the local midwives). The woman was very weak and bed ridden; the performance was to please gods. We advised her parents to go to the hospital, and consult doctor. After two days the patient was admitted to hospital, and doctor tried his best. Unfortunately, it was a failure, because the patient party tried with indigenous medicines earlier and came to hospital at the last stage of the patient.

Case Number 7. During haematological survey, a man (aged around 35) was found to have a haemoglobin level of 4.5 g/dL. and was advised to consult doctor. The man took the advice very casually because he did not realize any health problems out of this and was feeling fit (due to low level of cognition). He continued his work in the tea garden without consulting the doctor and died suddenly after 3 months.

Beside these, there are many other case studies, which have not been illustrated here. It is apparent from the case studies that people of the tea garden especially the labourers are careless and very reluctant to visit or consult doctor for their health ailments due to poor cognition and lack of awareness. In many instances, it had been found that the doctor was operating or stitching any severe wound of the patient without any anaesthesia; the assistants were forcefully holding the patient with outdoor table. The patients felt pain but not to that extent which was intolerable to them. It obviously reflects that the sensation or the level of body discomfort was at the high end in other word the threshold level of pain feelings was at the extreme level of those people, which always help them to feel fit and never bother with minor ailments. To our knowledge, there is no objective method to test the threshold level of body discomfort or to measure tolerance limit of pain or body discomfort of human being. Therefore, the observation may give some light on the issue.

Now let us look at selected health practices of the people and subjective assessment of health and reported ailment symptoms. Table 1 shows some selected health practices and perceived health status of Oraon tea garden labourers of Birpara and Dalgaon tea estate in Jalpaiguri district. The subjects were asked about their perceived health status during one-week preceding the survey and 82.5% of the labourer reported that their health status is "good" (even if they were suffering from any long-standing diseases like heart problem, TB, and so forth, this may be their nature of answering questions or to avoid other discussions). In case of other health practices, 76.5% reportedly kept regular meal times (workers usually take a meal at 6:30 am, then a lunch at 3:00 pm and dinner at 8:30 pm) 93.7% got enough food to eat and 73.8% consumed nonvegetarian foods during one-week prior to survey. A large number of Oraon tea garden labourers (89.7%) informed that they did not keep any domesticated animals inside the house because they felt that it might cause diseases. Majority (83.7%) of the study population informed that they drink water from tube well (which is around 50 feet deep and it is primarily surface water). Majority of the house provided to them by tea garden authority had no toilet, and hence they use the riverside (61.4%) for easing and ease inside the tea garden (36.8%).

The subjective well-being and frequency of reported ailment symptoms often provide important information on the health status of individual as well as population. At this point, the prevalence and pattern of diseases in the study area may be worth mentioning. Hooker [28] and Hunter [29] reported malaria as an endemic disease in the locality even in the nineteenth century. They had added a few more diseases to malaria like enlarged liver, splenetic afflictions, anaemia, goitre, diarrhea, and dysentery. The *West Bengal District Gazetteers*, Jalpaiguri district [30], furnished a more or less similar list of diseases on the basis of hospital data. In

Table 1: Selected health practices and perceived health status.

Health practices (n = 446)	Response	Frequency	Percentage
Keep regular meal time	Yes	341	76.46
	No	105	23.54
Get enough food to eat	Yes	418	93.72
	No	28	6.28
Consumption of fish/meat/egg in the last week (preceding the survey)	Yes	329	73.77
	No	117	26.23
Habit of keeping cattle, pig, and other animals inside the house	Yes	46	10.31
	No	400	89.69
Source of drinking water of the household	Tube well	373	83.63
	Well/river	5	1.12
	Piped water	68	15.25
Easing habit and place	River side	274	61.43
	Inside the TG	164	36.77
	Railway line	6	1.35
	Toilet	2	0.45
Self-assessment of present health status (at the time of survey)	Very good	2	0.45
	Good	368	82.51
	Fair	29	6.50
	Bad	43	9.64
	Very bad	4	0.90

Birpara tea garden helminthic infection rate was reported to be 99.07% [31].

However, Table 2 shows the frequency of occurrence of ailment and nutritional deficiency symptoms of the tea garden. The data may have some unavoidable limitations like possibilities of under- or overreporting due to recall lapses. The frequencies of occurrence of ailment symptoms have been categorised as "most frequent" (>50%), "frequent" (25%–50%), and "less frequent" (<25%) for the convenience of explaining the result. The "most frequent" category of ailment is absent among male labourers. The ailments like cough, anaemia, sore throat, abdominal pain, headache, backache, skin disease, chest pain, and diarrhoea are "frequent" ailments prevalent among the male labourers. No case of blindness, chicken pox, and leprosy were reported. All other ailments are "less frequent" among males. Among females, the "most frequent" category includes ailments like anaemia, sore throat, backache, headache, cough, and abdominal pain. The ailments like coughed out phlegm, chest pain, diarrhea, and night blindness are the "frequent" ailments among female labourers. No case of blindness, measles, filarial, and leprosy had been reported. All other ailments are "less frequent" among female labourers.

The result indicates that a number of ailments show to be "frequent" among males are "most frequent" among females that suggests "males suffer less than females" or in other way males perceive less sickness than females due to higher threshold. Night blindness is relatively higher among females than males. A very high frequency of anaemia was prevalent among females. Skin disease is comparatively high among males may be due to poor hygienic habits than females.

Table 3 represents infant and adolescent mortality rates of Oraon married females working as tea garden labourers of Birpara and Dalgaon tea estates. The table shows that both infant and adolescent mortality are relatively high among the mothers of 45+ years age group and low among mothers aged 25–34. The total infant and adolescent mortality are 15.50 and 25.04, respectively, among Oraon mothers of the tea garden. However, according to 1991 census [21], infant mortality rate of Jalpaiguri district was 6.1.

Comparison of mortality data of Oraon tea garden labourers of Birpara and Dalgaon tea estate, Jalpaiguri district, with other comparable populations has been presented in Table 4. The table shows that infant mortality rate was found to be quite low in the present study population than Santals and Birhors [32]. The adolescent mortality is higher among the Mundas of Ranchi district and lower among the Oraons of Andaman and Nicobar region compared to the present study.

Infant mortality exhibits significant relationship with a variety of socioeconomic variables, which includes income, birth spacing, family size, child rearing practices, and so forth [33]. It had also been observed in the present study that poor child rearing practices, hygienic habits, and the mother's health have a great influence over infant mortality though the relationship has not been presented in the study because of paucity of data.

Table 2: Frequency and percentage of ailment symptoms.

Reported ailment symptoms	Male (N = 206)		Female (N = 294)	
	No.	%	No.	%
Sore throat or runny nose with fever	71	34.47	158	53.74
Coughed for more than a week	76	38.89	151	51.34
Coughed phlegm for more than 2 weeks	64	31.07	132	44.90
Coughed out blood more than a day at a stretch	3	1.46	1	0.34
Repeated indigestion and stomach upset	37	17.96	59	20.07
Vomited several times for more than a day	14	6.80	26	8.84
Diarrhoea more than 5 days	54	26.21	98	33.33
Abdominal pain lasting more than a day	72	34.95	147	50.00
Blood mixed in stool frequently	33	16.02	50	17.01
Passed worm	4	1.94	9	3.06
Fresh blood dripping with stool	—	—	—	—
Repeated pain over the chest	57	27.67	120	40.82
Shortness of breath after light work	8	3.88	33	11.22
Sudden attack of weakness and fainting	—	—	7	2.38
Feeling tired frequently	11	5.34	37	12.58
Frequent backache	70	33.98	164	55.78
Frequent headache	71	34.47	164	55.78
Waking up with stiff joints	12	5.83	48	16.33
Fever with shivering more than 3 days	12	5.83	18	6.12
Pain in the ear for more than 1 week	4	1.94	20	6.80
Discharge from the ear for more than 1 week	1	0.49	9	3.06
Red eyes for more than 3 days	3	1.46	1	0.34
Night blindness	36	17.48	74	25.17
Blindness	—	—	—	—
Skin diseases	63	30.58	72	24.49
Accident	1	0.49	—	—
Measles	3	1.46	—	—
Chicken pox	—	—	1	0.34
Diagnosed case of filaria	1	0.49	—	—
Diagnosed case of goitre	6	2.91	43	14.63
Diagnosed case of T. B.	3	1.46	3	1.02
Diagnosed case of leprosy	—	—	—	—
Deficiency symptoms				
Cheilosis	—	—	—	—
Glossitis	2	0.97	19	6.46
Angular stomatitis	2	0.97	3	1.02
Anaemia	73	35.44	238	80.95

Table 3: Mortality rate by age group of married women.

Age group of married women (yrs.)	Number of married women	Total no. of live births	No. of deaths <1 yr.	No. of deaths (0–14) yrs.	Infant mortality rate	Adolescent mortality rate
<25	210	298	41	53	13.76	17.79
25–34	140	521	55	88	10.56	16.89
35–44	83	464	76	116	16.38	25.00
≥45	160	1085	195	336	17.97	30.97
Total	601	2368	367	593	15.50	25.04

Table 4: Comparison of mortality data.

Population	Area	Infant mortality rate	Adolescent mortality rate	Source
Munda	Ranchi district, Bihar	—	29.82	Kumar et al. [39]
Oraon	Rangat and Mayabunder Island, Andaman and Nicobar region	—	12.77	Bhattacharya et al. [40]
Santal	Hazaribagh district, Bihar	18.52	—	Verma [32]
Birhor	Hazaribagh district, Bihar	25.00	—	Verma [32]
Oraon	Jalpaiguri district, West Bengal	15.50	25.04	Present study

4. Discussion

The present study is based on cross-sectional data, which has inherent limitations and perhaps cannot depict the true picture of ailments and diseases of the community because of the perception level of the individuals. Seasonal variation was also not taken into account. The possibility of underestimation and/or overestimation of ailments and diseases cannot be ruled out, because of poor literacy level of the labourers especially of the females and, secondly, inability of the individuals to express their problems due to poor cognition, lack of awareness, and a high threshold level of the physical discomfort due to ailment or disease.

The health practices (Table 1) of the people depict that individuals' claim of getting sufficient food to eat but the actual situation is different because the food they are consuming is not a balanced diet. They are consuming sufficient amount of cereals (rice and wheat flour) to meet their hunger. Most of the individuals reported that their source of drinking water is tube well. It is true, but the tube well is 50 feet deep, which has capacity to lift surface water only, and perhaps it is the primary reason that people often suffer from water borne diseases. It is very clear from the result (Table 2) that females of the tea garden suffer more than the males; even vitamin deficiency diseases are more frequent among females, may be due to frequent child bearing or pregnancy. A very high frequency of anaemia among females was reported due to deprivation of food [22]. Overall mortality rates are higher in the present tea garden population (Table 3) compared to census data of the district, perhaps due to living in unhygienic condition and poor nutritional status of the mothers. Comparative mortality data of the population shows (Table 4) that there is no change in mortality rate over time and space (the present population is a migrated group).

Let us look to the schematic diagram, which explains some of the relationship between major concepts more clear.

Health is a complete state of physical, mental, and social well-being. Anthropologists are primarily concerned with physical well-being because of its objectivity; therefore, any deviation from physical well-being may be termed as illness. However, the individual should perceive deviation from physical well-being at the inception and the perception develops from the cultural background and make-up of the individual. Again, the perception is also a product of knowledge and cognition. For an example, if an individual is experiencing a physical discomfort (ailment/symptom), then it can be thought in two ways: (1) the individual is completely unaware of its presence (because the individual lacks sensitiveness and threshold level is at the high end) then there is no question of knowledge and cognition of the discomfort. (2) The individual is aware of its presence—(individual is sensitive and threshold level is at the lower limit) but neglecting it because the individual lacks knowledge and cognition of what are the consequences of such ailment/symptoms.

In most of the cases described in the first part of result section, the individuals show lack of perception, knowledge, and cognition; their threshold limit was at the high end. Case number 1 showed that the individual was aware of the disease. However, ignorance and lack of knowledge and cognition pushed her to death. Case number 2 again depicted such ignorance about the future consequences. Case number 3 depicted that the threshold level of the people was so high which did not allow them to feel the ailments or symptoms. In Cases numbers 4 and 5, the individuals were completely unaware of their disease, because their threshold level was at the high end. Actually, they failed to perceive their physical discomfort in proper time, which debar them from seeking medical help. The threshold level of the present population is very high which we call severity and crosses tolerance limit of other populations of same time and region.

The term "threshold" here refers to the minimum sensation of body discomfort. Let us take an example of educated city people, who generally recognise any body discomfort at its inception and try to seek medical help. But the Oraon tea garden labourers cannot recognize their body discomfort early as described in Case numbers 1, 4, 5, and 7. Secondly, their threshold level and tolerable limit is very high, comparable with severity and crossing tolerance limit (Figure 1) of normal humans. So far, our knowledge is concerned; the threshold level (which can be measured objectively to some extent) varies individual to individual and there are wide variations within and between different sense organs (eye, ear, nose, tongue, and skin). Again, the tolerance limit of physical discomfort has some individual variation. However, many of the body sensations, for example, pain, burning sensation, and so forth, are not objectively measurable [34–36].

However, interpretation and messages relating to body discomfort as well as tolerance limit of body discomfort can be affected by several factors, for example, (1) emotional and psychological state, (2) memories of past pain experiences, (3) upbringing, (4) attitude, (5) expectations, (6) beliefs and values, (7) age, (8) sex, and (9) social and cultural influences [37, 38]. All these sufferings (poor food and unhygienic

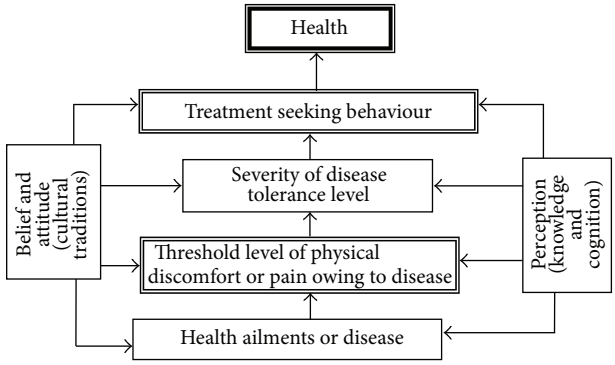

Figure 1: The schematic diagram explaining the relationships between/among the major concepts of health related behaviour (which is unique to any specific cultural group).

living) and the diseases (which are the resultant effect of industrialization) made the simple living of Oraon tea garden labourers more complicated.

In many instances, the curable health problems were found to be laying in untreated conditions because the labourers were not availing the services in appropriate time due to lack of knowledge. Response to the various health programmes, like malaria eradication programme, Leprosy eradication programme, and so forth, was not satisfactory. Therefore, health care programmes can be made accessible to community in a more efficient way through community participation. However, the failures of all the health care programs are hidden under the concept of their cognition and threshold, which the Oraon people have developed through age-old cultural traditions. It is rather easy to start a health care program in the community but it is not easy to change the cultural traditions.

The participants of the present study is therefore failed to cognize their health risk due to lack of education, and lack of knowledge on the severity and vulnerability of their illness. Low socioeconomic status of the population in comparison with the surrounding community also made up their psychological mind-set that they are the physical labourers and supposed to be very hardworking and should have a high threshold level to tolerate the bodily discomfort. Together with poor availability of health care and traditional health seeking behaviour to recover from sickness, the community was in more vulnerable situation and that was negatively affecting their health and well-being.

5. Conclusion

In sum, it can be pointed out that the relationship between/among cognition and threshold with health status of any population exists. As has been mentioned earlier, the level and intensity of cognition and threshold vary due to several concomitant factors. It needs more studies in different population groups in order to know the effect of cognition and threshold on health status in a more general way. As a note of caution, health studies in future should look more objectively for both cognition and threshold of the community regarding their health practices, which will help to understand the health problems more comprehensively.

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