

Original Research Article

<https://doi.org/10.20546/ijcmas.2018.709.395>

Nutritional Health Status of Rural Tribal Children in Khowai District of Tripura, India

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ABSTRACT

Under nutrition is a major public health problem among school children. Adequate nutrition is critical for optimal growth and health development of children. To assess the nutritional health of rural tribal 6-12 years school going children of Khowai district, Tripura. The sample for the present cross sectional study was conducted in three schools (Sukhiabari Jr. B School, R.S Colony Sr. B School and Kalidas Debbarma Smriti Sr. B School) rural based primary and Sr. B School of Khowai district, Tripura, in India. Total of 155 students (78 boys and 77 girls) of aged 6-12 years were participated in the study. The sample was selected by cluster random sampling method. The subjects consisted mostly from families of lower socio-economic class of Hindu and some were from Christian community and are consisted to be by typical of average Indian children. The children were assessed for nutritional status by clinical examination as well as anthropometric assessment. Weight and height of the children were measured and height-for-age (stunting), weight-for-height (wasting) and weight-for-age (under weight) were calculated. Out of 155 numbers of school children, wasting was found in 53.83% boys and 72.71% girls out of which 16.12% children showed severe degree of wasting. Stunting was found in 37% boys and 58.44%. Rice consumption, family size, infection, vaccination, latrine availability were significantly associated with malnutrition. Hair changes were seen in 80.64%. Teeth changes were seen in 56.12%. Skin changes were noted in 65.80% children. The study provided evidence that school children in Sukhiabari village were under acute and chronic nutritional stress. Promoting appropriate dietary habits through effective nutritional education would be an effective preventive method. Main focus should be on qualitative and quantitative impartment on the diets with increased awareness on importance of preventing under-nutrition. Under-nutrition was pronounced in girls as compared to boys.

Keywords

Nutritional health status, Malnutrition, Rural tribal children, Khowai district

Article Info

Accepted:
20 August 2018
Available Online:
10 September 2018

Introduction

According to 2011 census, the total population of India was 121 crores. Among them the total tribal population was 84,326,240 and most of them belong to low Socio-economic status. The second smallest Sub-Himalayan hilly

state named Tripura situated in the north-east region of India consists of Nine-teen classified tribal population. The total population of Tripura was 36, 71,032 (According to 2011 Census). Among them the total tribal population was 9, 93,426. Mostly they were situated in rural area. The rural tribal

populations are recognized as socially and economically vulnerable. Khowai a district of Tripura situated in west of the Tripura map. The total population of Khowai was 3, 71,722 and the total tribal population was 1, 65,532 (According to 2011 Census). So many rural tribal villages are there in Khowai district. One of the villages in Sukhiabari ADC village, many poor families is living there. Their economic status and social status are very poor. In this reason there children's health status also will be poor.

Nutrition may be defined as the science of food and its relationship of health. It is concerned primarily with the part played by nutrients in body growth, development and maintenance. Good nutrition means "maintaining a nutritional status that enables us to grow well and enjoy good health".

Health is defined by the World Health Organization as a "state of complete physical, mental and social wellbeing (WHO, 1984). It is also asserted that health may be seen as a state of dynamic equilibrium between organism and its environmental. Good health corresponds to dynamic stability, normal function and homeostatic control. Ill-health corresponds to a state of instability, loss of function and failure of self-regulation. Globally, malnutrition among school age children is becoming a major public health concern. More than 200 million schools are stunted and underweight and if no action is taken and at this rate, about one billion school children will be growing up by 2020 with impaired physical and mental development (Srivastava *et al.*, 2012). Malnutrition is the underlying cause of 7.6 million child deaths each year before their fifth birthday. Meeting this challenge is doubly urgent because among children who survive, chronic malnutrition causes devastating and irreversible damage (Cheshire *et al.*, 2008). Lack of nutritious food coupled with infection and illness, means their

bodies and brains do not develop properly and at least 170 million children are affected by stunting (Global Monitoring Report, 2012; Garba *et al.*, 2010; Reji *et al.*, 2011). The term malnutrition refers to both under-nutrition and over nutrition. Good nutrition provides stronger immune system, better health and productivity. Various forms of malnutrition including both macro and micro nutrient, deficiencies affect a large segment of population in India (Vandana Sati *et al.*, 2012). India has the dubious distinction of having the largest number of malnourished children in the world. Assessment of nutritional status is a vast subject (WHO, 1995, 1999). According to Joliffe, the study of nutritional status of any country is important for the mechanism of evaluation and morphological character which brings about the change in the pattern of body development and its structure. The social system of India are very surprising where the boys are always has been taken care well, the girls child by parents. So almost girl children are victim of negligence. Boys are given first priority with the available food within the family. The propose study provides an opportunity to investigate the nutritional health status of rural tribal 6-12 years boys and girls school going children. The possible effect of children health are malnutrition, under nutrition will be more pronounced in girls as compared to boys. The proposed study attempts to investigate this hypothesis.

Materials and Methods

Study Samples

The sample for the present cross sectional study was conducted in three schools (Sukhiabari Jr. B School, R.S Colony Sr. B School and Kalidas Debbarma Smriti Sr. B School) rural based primary and Sr. B School of Khowai district, Tripura, in India. Total of 155 students (78 boys and 77 girls) of aged 6-

12 years were participated in the study. The sample was selected by cluster random sampling method. The subjects consisted mostly from families of lower socio-economic class of Hindu and some were from Christian community and are consisted to be by typical of average Indian children.

Study area

Tripura is a Sub- Himalayan hilly state of North –East India. According to the census report of 2011 the population of Tripura is about 36.71 lakhs with about 1.87 lakhs males and 1.79 lakhs females. Most of them belonged to low socio-economic status (Tripura: Human Development Report).

The sex ratio of the state is 961 females per thousand males. The density of the population is 350 persons per square kilometers. Tripura constitutes 0.3 % of India's total population. They are scattered over 8 districts, 58 blocks and 870 villages. 82.94 percent people of this state live in rural areas (Bhargava *et al.*, 2006; Das, 2008; Uddin and Nag, 2012).

The total population of Khowai district was 3, 71,722 and the total tribal population was 1, 65,532 (according to 2011 census). This study was conducted over three months i.e. August, 2015 and September, 2015. The selected schools are located approximately 16 km from khowai town.

Data Collection

Ethical approval was obtained from the Headmasters of the selected schools and guardians of the chosen families respectively before commencement of the study. All children between 6-12 years of age as determined using schools records were included in the study. Study aim, plan and benefits were explained to each school H/M to obtain his/her approval.

Anthropometric measurement

The measurements were performance by following the standard techniques (Laurie and Wiener, 1981). Height, Weight, Body Mass Index (BMI), Mid-upper-arm Circumference (MUAC) was taken in to consideration. Height in centimeter was marked on a wall in the school with the help of a measuring tape. All children were measured against the wall. Height was recorded to the nearest 1 cm (Anand *et al.*, 1999). Body weight was measured with light clothing and shoes off, buy weighting machine to the nearest 200 g. Mid-upper-arm-circumference (MUAC) was measured in at the level of the midpoint of the upper arm (left arm), between the acromion process and the tip of the olecranon, with the arm hanging relaxed by an accurate soft metallic tape (Stanley made in England) to the nearest 0.1 cm range (Gopaldas *et al.*, 1987).

To assess the nutritional status of an individual or population, anthropometry is widely recognized as one of the useful techniques because it is highly sensitive to detect under-nutrition (National Institute of Nutrition, 2005). Gomez classification and water low's classification were applied to calculate the stunting (Height for age) and underweight (weight-for age) types of malnutrition to explain the level of their physical growth and development (Gomez *et al.*, 1956).

Questionnaire Survey

First, school children were screened at school to participate in the study and then parents were traced back for detail information (Interview) on personal (Student), and parental socio-economic, demographic, environmental and access to facilities and health and health related issues at the community level. Data on the type of most frequently produced add consumed crop, households assets and other

aspects were collected during interview by students' parents/ family members.

Clinical nutrition survey

Clinical examination is commonly used in survey, since it is relatively simple and do not call for Sophisticated equipment. It revealed the anatomical changes due to malnutrition that can be diagnosed by the naked eyes.

Food frequency questionnaire

Food Frequency Questionnaire is either interviewer administrated or self-completed. A detailed questionnaire includes the list of foods and the subject answer as to how often and in what quantity each food is eaten per day, per weeks. The collected information of the food consumed is taken checked with the recommended Dietary Allowance (RDA by ICMR, 1990). It gives an estimate of the amount and frequency of the various nutrients consumed by the individual.

Statistical analysis of data

All the data were evaluated statistically by two tail's test was performed using the origin Lab (Ver.6.0) Software. P values of less than 0.05 were considered to indicate statistical significance.

Results and Discussion

Demographic characteristics, Housing and environmental health factors, health and health related factors, nutritional deficiencies, different nutritional anthropometric indices and nutrients consumption were examined to determine the nutritional health status of rural tribal children in the age group of 6-12 years school going children.

School age is considered as a dynamic period of growth and development because children

undergo physical, mental, emotional and social changes. In other words the foundation of good health and sound mind are laid during the school age period (Srivastava *et al.*, 2012). Hence the present study was formulated with the objective, to determine the Nutritional Health Status of rural tribal children.

A total of 155 numbers of school children from three Primaries and Sr. Basic Schools took part in the study. Mothers with Madhyamik pass were only 1.29% and 3.22% for fathers. Hindu was the most frequently appeared parental religion 92.25% and only 7.74% was Christian. Ownership of livestock was 95.48% and most type of crop they were used in rice (100%). The percentage of latrine availability was 34.19% and refuse disposal was found 100% in open field. Animal living in the same house was 12.25%. The source of drinking water for 17.41% of house hold was found to be pipe water, 8.38% was found protected well. Student's presence of dirt in finger nails was found 95.48% and wearing of shoes was found 62.58%. The total percentage distribution of the nutritional deficiency signs amongst rural tribal children was found only 1.28% boys and 3.89% girls heaving water eyes. Lips were found 27.26% girls and 11.53% boys were children were suffering mild angular stomatitis. Only 29.48% of boys and only 9.09% of girls observed normal Hair. Teeth were observed 35.89% boys and 68.83% girls had discolored teeth which could be a result of poor dental care.

Physical examination of all the 155 children was carried out 78 (50.32%) were boys and 77 (49.67%) were girls. In present study boys were found taller than the girls. Saheb and Rajendra Prasad, (2009) in his study similarly found that which showed the boys being slightly taller than girls up to the age of 9 years. Both boys and girls height increases monotonically with their age (Table 1-14).

Fig 1: - Comparison of weight for age in boys and girls children

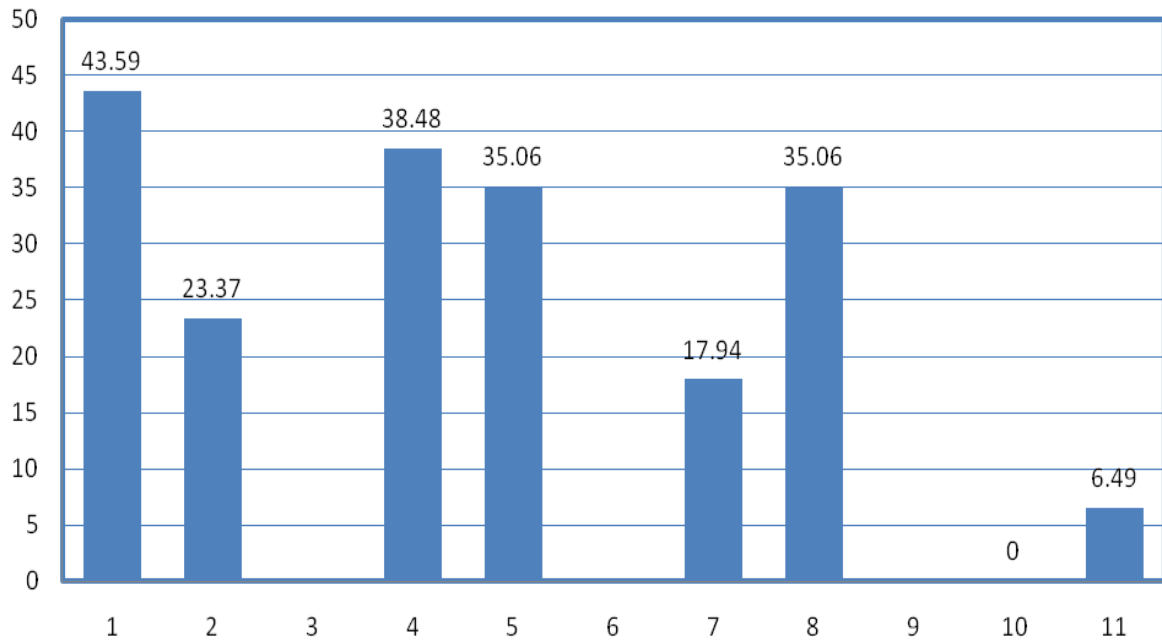


Fig 2: - Comparison of height for age in boys and girls children

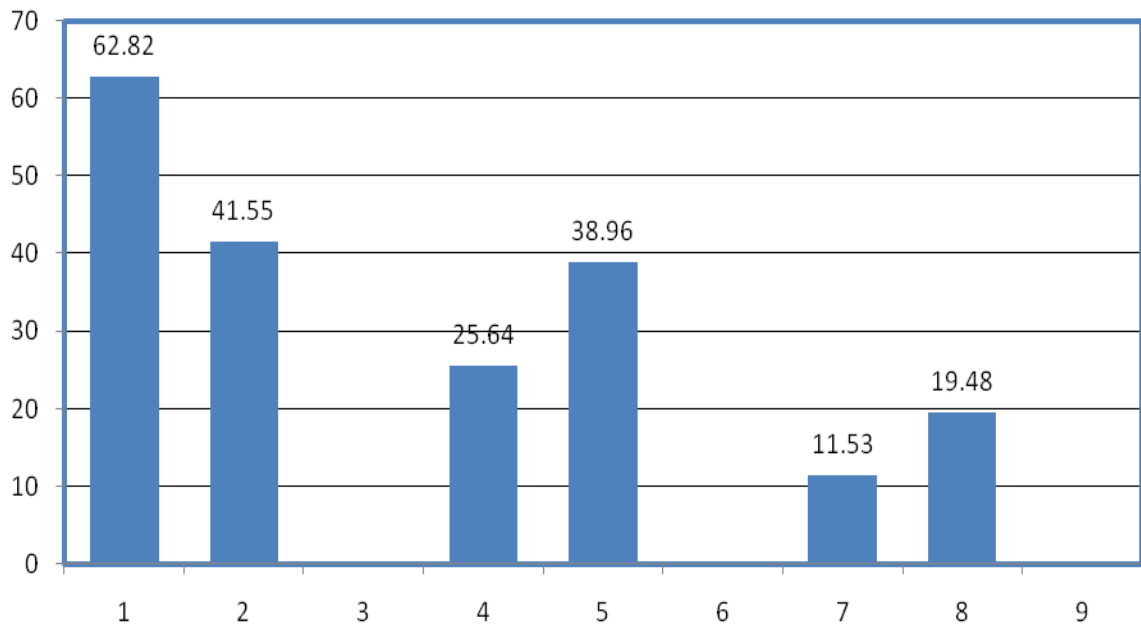


Table.1 Socio-economic and demographic characteristics of parents

| Variable | Category | n (%) |
|---------------------------|--------------------------|--------------|
| Age of Mother | 22-35 | 106(68.38%) |
| | 36-45 | 47 (30.32%) |
| | >45 | 2 (1.29%) |
| Age of Father | 24-35 | 67(43.22%) |
| | 36-45 | 53 (34.19%) |
| | >45 | 35 (22.58%) |
| Marital status of Mothers | Married | 146 (94.19%) |
| | Divorced | 2 (1.29%) |
| | Widowed | 7 (4.51%) |
| Age of School Children | 6-9 | 89 (57.41%) |
| | 10-12 | 66 (42.58%) |
| Sex of School Children | Male | 78 (50.32%) |
| | Female | 77 (49.67%) |
| Religions of Parents | Hindu | 143 (92.25%) |
| | Muslim | - |
| | Christian | 12 (7.74%) |
| | Others | - |
| Mothers Education | Does not read/ Write | 7 (4.51%) |
| | Primary education | 146 (94.19%) |
| | Madhyamik Pass | 2 (1.92%) |
| Father Education | Does not read/ Write | 6 (3.87%) |
| | Primary education | 144 (92.90%) |
| | Madhyamik Pass | 5 (3.22%) |
| Occupation of Father | Farmer | 103 (66.45%) |
| | Daily Labours Government | 47 (30.32%) |
| | Employee | 5 (3.22%) |
| Family Income | 2000-3000 | 43 (27.74%) |
| | 3000-5000 | 107(69.03%) |
| | >5000 | 5 (3.22%) |
| Family size | 2-5 | 71 (45.80%) |
| | 6-8 | 81 (52.25%) |
| | >8 | 3 (1.93%) |
| Ownership of Radio | Yes | - |
| | No | 155 (100%) |
| Ownership of T.V | Yes | 87 (56.12%) |
| | No | 68 (43.87%) |
| Family decision maker | Father | 93 (60%) |
| | Mother | 49 (31.61%) |
| | Both by discussion | 13 (23.63%) |
| Ownership of livestock | Yes | 148 (95.48%) |
| | No | 7 (4.51%) |
| Most type of crop | Rice | 155 (100%) |
| | Others | - |

Table.2 Housing and environmental health factors of parents of school children's

| Variable | Category | n (%) |
|---------------------------------|-------------------------|--------------|
| Type of roof material | Thatched | 3 (1.93%) |
| | Corrugated Iron | 152 (98.06%) |
| Animal living in the same house | Yes | 19 (12.25%) |
| | No | 136(87.74%) |
| Number of rooms of the house | 1 | 39 (25.16%) |
| | 2 | 100 (64.51%) |
| | 3 | 7 (4.51%) |
| | 4 | 9 (5.80%) |
| | 5 | - |
| Latrine availability | Yes | 53 (34.19%) |
| | No | 102 (65.80%) |
| Refuse disposal | Pit | - |
| | Burning | - |
| | Open field | 155 (100%) |
| | Garbage can | - |
| Source of drinking water | Pipe water | 27 (17.41%) |
| | Protected Well/ Spring | 13 (8.38%) |
| | Unprotected Well/Spring | 115 (74.19%) |
| | River | |

Table.3 Health and health related factors of School Children

| Variable | Category | n (%) |
|---|---------------------|--------------|
| Infection during previous two weeks | Yes | 15 (9.67%) |
| | No | 140 (90.32%) |
| Knowledge of mothers on good for children | Yes | 87 (56.12%) |
| | No | 68 (43.87%) |
| Provision pocket money | Yes | - |
| | No | 155 (100%) |
| Immunization status | Yes | 148 (95.48%) |
| | No | 7 (4.51%) |
| Number of breast milk feeding years | Up to six months | 27 (17.41%) |
| | One year | 116 (74.83%) |
| | Two years and above | 12 (7.74%) |
| Presence of dirt in finger nails | Yes | 148 (95.48%) |
| | No | 7 (4.51%) |
| Wearing of shoes | Yes | 97 (62.58%) |
| | No | 58 (37.41%) |

Table.4 Clinical nutritional survey chart of rural tribal children's

| Clinical signs | Category | Boys | Girls |
|--------------------|---------------------|--------------|-------------|
| General appearance | Good | 33 (42.30%) | 18 (23.37%) |
| | Fair | 28 (35.89%) | 28 (35.06%) |
| | Poor | 16 (20.51%) | 25 (32.46%) |
| | Very poor | 1 (1.28%) | 7 (9.09%) |
| Hair | Normal | 23 (29.48%) | 7 (9.09%) |
| | Loss of Luster | 17. (21.79%) | 20 (25.97%) |
| | Discolored and Dry | 31 (39.74%) | 42 (54.54%) |
| | Sparse and Brittle | 7 (8.97%) | 8 (10.38%) |
| Eye discharge | Absent | 77 (98.71%) | 74 (96.10%) |
| | Watery | 1 (1.28%) | 3 (3.89%) |
| | Mucopurulent | | |
| Lips | Normal | 67 (85.89%) | 56 (72.72%) |
| | Stomatitis, Mild | 9 (11.53%) | 11 (14.28%) |
| | Stomatistis, Marked | 2 (2.56%) | 10 (12.98%) |
| Teeth | Absent | 47 (60.25%) | 21 (27.27%) |
| | Chalky teeth | 2 (2.56%) | 3 (3.89%) |
| | Pitting of teeth | 1 (1.28%) | - |
| | Discolored | 28 (35.89%) | 53 (68.83%) |
| Skin | Normal | 31 (39.74%) | 22 (28.57%) |
| | Loss of Luster | 12 (15.38%) | 11 (14.28%) |
| | Dry and Rough | 35 (44.87%) | 44 (57.14%) |

Table.5 Distribution of boy's and girl's according to their age

| Age (in complete years) | Number of Children | Boy's | | Girl's | |
|-------------------------|--------------------|-----------|--------------|-----------|--------------|
| | | No | % | No | % |
| 6 | 22 (14.19) | 12 | 54.54 | 10 | 45.45 |
| 7 | 23 (14.83) | 11 | 47.82 | 12 | 52.17 |
| 8 | 22 (14.19) | 11 | 50 | 11 | 50 |
| 9 | 22 (14.19) | 11 | 50 | 11 | 50 |
| 10 | 23 (14.83) | 11 | 47.82 | 12 | 52.61 |
| 11 | 21 (13.54) | 11 | 52.38 | 10 | 47.61 |
| 12 | 22 (14.19) | 11 | 50 | 11 | 50 |
| Total (%) | 155 (100) | 78 | 50.32 | 77 | 49.67 |

Table.6 Mean height of the boys and girls

| Age | Boy's | | | Girl's | | | t value | p value |
|-----|-------|------------------|------|--------|------------------|------|---------|---------|
| | No | Mean height (cm) | SD | No | Mean height (cm) | SD | | |
| 6 | 12 | 114.33 | 3.47 | 10 | 111.7 | 2.36 | 0.058 | P<0.008 |
| 7 | 11 | 119.90 | 4.71 | 12 | 118.33 | 5.51 | 0.751 | P<0.008 |
| 8 | 11 | 123.90 | 4.39 | 11 | 120.54 | 3.60 | 0.080 | P<0.008 |
| 9 | 11 | 134 | 6.94 | 11 | 124 | 3.64 | 0.0006 | P<0.007 |
| 10 | 11 | 131.63 | 7.28 | 12 | 130.75 | 6.84 | 0.777 | P<0.007 |
| 11 | 11 | 133 | 6.61 | 10 | 136.5 | 8.60 | 0.338 | P<0.007 |
| 12 | 11 | 146 | 5.32 | 11 | 140.27 | 6.41 | 0.577 | P<0.006 |

Table.7 Mean weight of the boys and girls

| Age | Boy's | | | Girl's | | | t value | p value |
|-----|-------|------------------|------|--------|------------------|------|---------|---------|
| | No | Mean weight (kg) | SD | No | Mean weight (kg) | SD | | |
| 6 | 12 | 18.16 | 1.40 | 10 | 16.3 | 2.1 | 0.037 | P<0.05 |
| 7 | 11 | 22.54 | 3.36 | 12 | 20.33 | 4.74 | 0.0229 | P<0.04 |
| 8 | 11 | 21.81 | 4.01 | 11 | 19.27 | 2.83 | 0.117 | P<0.04 |
| 9 | 11 | 23.63 | 4.53 | 11 | 19.63 | 2.49 | 0.025 | P<0.04 |
| 10 | 11 | 28 | 3.64 | 12 | 24.33 | 4.30 | 0.048 | P<0.03 |
| 11 | 11 | 34.36 | 5.84 | 10 | 32.4 | 5 | 0.440 | P<0.02 |
| 12 | 11 | 32.72 | 5.04 | 11 | 31 | 4.15 | 0.413 | P<0.03 |

Table.8 Nutritional status (weight for height) as per age group

| Age | No | Normal | % | Malnutrition | | | | | |
|-----|----|--------|-------|--------------|-------|----------|-------|--------|-------|
| | | | | Mild | % | Moderate | % | Severe | % |
| 6 | 22 | 8 | 36.36 | 8 | 36.36 | 5 | 22.72 | 1 | 4.54 |
| 7 | 23 | 18 | 78.26 | 5 | 21.73 | - | - | - | - |
| 8 | 22 | 7 | 31.81 | 4 | 18.18 | 6 | 27.27 | 5 | 22.72 |
| 9 | 22 | 2 | 9.09 | 5 | 22.72 | 7 | 31.81 | 8 | 36.36 |
| 10 | 23 | 7 | 30.43 | 4 | 17.39 | 8 | 34.78 | 4 | 17.39 |
| 11 | 21 | 11 | 52.38 | 5 | 23.80 | 3 | 14.28 | 2 | 9.52 |
| 12 | 22 | 4 | 18.18 | 4 | 18.18 | 9 | 40.90 | 5 | 22.72 |

Table.9 Nutritional status (weight for height) as per sex

| Sex | No | Nutritional status | | | | | | | |
|--------|----|--------------------|--------|---------|-------|----------|-------|--------|-------|
| | | Normal | No (%) | Wasting | | | | | |
| | | | | Mild | % | Moderate | % | Severe | % |
| Boy's | 78 | 36 | 46.15 | 18 | 23.07 | 18 | 23.07 | 6 | 7.69 |
| Girl's | 77 | 21 | 27.27 | 17 | 22.07 | 20 | 25.97 | 19 | 24.67 |

Table.10 Nutritional status (Height for age) as per age

| Age | No | Nutritional status | | | | | | | |
|-----|----|--------------------|-------|----------|-------|----------|-------|--------|---|
| | | Normal | % | Stunting | | | | | |
| | | | | Mild | % | Moderate | % | Severe | % |
| 6 | 22 | 15 | 68.18 | 7 | 31.81 | - | - | - | - |
| 7 | 23 | 16 | 69.56 | 7 | 30.43 | - | - | - | - |
| 8 | 22 | 13 | 59.09 | 8 | 36.36 | 1 | 4.54 | - | - |
| 9 | 22 | 13 | 59.09 | 6 | 27.27 | 3 | 13.63 | - | - |
| 10 | 23 | 9 | 39.13 | 7 | 30.43 | 7 | 30.43 | - | - |
| 11 | 21 | 6 | 28.57 | 5 | 23.80 | 10 | 47.61 | - | - |
| 12 | 22 | 9 | 40.90 | 9 | 40.90 | 4 | 18.18 | - | - |

Table.11 Nutritional status (Height for age) as per sex

| Sex | No | Normal | % | Stunting | | | | | |
|--------|----|--------|-------|----------|-------|----------|-------|--------|---|
| | | | | Mild | % | Moderate | % | Severe | % |
| Boy's | 78 | 49 | 62.82 | 20 | 25.64 | 9 | 11.53 | - | - |
| Girl's | 77 | 32 | 41.55 | 30 | 38.96 | 15 | 19.48 | - | - |

Table.12 Nutritional status (Weight for age) as per age

| Age | No | Normal | % | Under nutrition | | | | | |
|-----|----|--------|-------|-----------------|-------|----------|-------|--------|-------|
| | | | | Mild | % | Moderate | % | Severe | % |
| 6 | 22 | 8 | 36.36 | 11 | 50 | 3 | 13.63 | - | - |
| 7 | 23 | 13 | 56.52 | 8 | 34.78 | 2 | 8.69 | - | - |
| 8 | 22 | 7 | 31.81 | 6 | 27.27 | 9 | 40.90 | - | - |
| 9 | 22 | 2 | 9.09 | 7 | 31.81 | 10 | 45.45 | 3 | 13.69 |
| 10 | 23 | 7 | 30.43 | 10 | 43.47 | 4 | 17.39 | 2 | 8.69 |
| 11 | 21 | 11 | 52.38 | 8 | 38.09 | 2 | 9.52 | - | - |
| 12 | 22 | 4 | 18.18 | 7 | 31.81 | 11 | 50 | - | - |

Table.13 Nutritional status (Weight for age) as per sex

| Sex | No | Nutritional status | | | | | | | |
|--------|----|--------------------|-------|-----------------|-------|----------|-------|--------|------|
| | | Normal | (%) | Under nutrition | | | | | |
| | | | | Mild | % | Moderate | % | Severe | % |
| Boy's | 78 | 34 | 43.59 | 30 | 38.46 | 14 | 17.94 | - | - |
| Girl's | 77 | 18 | 23.37 | 27 | 35.06 | 27 | 35.06 | 5 | 6.49 |

Table.14 Percentage of distribution of rural tribal children based on 'Frequency of Food Groups' intake

| Sl. No | Food Groups | Daily | Weekly | Twice month | Monthly |
|--------|-----------------------------|-------|--------|-------------|---------|
| 1 | Cereals | 100% | - | - | - |
| 2 | Pulses and Legumes | 122% | 22% | 57% | 9% |
| 3 | Milk and Milk products | 41% | 7% | - | - |
| 4 | Green leafy vegetables | 71% | 29% | - | - |
| 5 | Fats and Oils | 47% | 36% | 17% | - |
| 6 | Meat, Egg, Fish and Poultry | 17% | 78% | 5% | - |

The peak increase in height boys was between 11 and 12 years and in girls it was 6 and 7 years. The study by Kalil and Khan (2004) show that overall increase in a mean height is more in boys (40.52 cm) than girls (37.35 cm) which similar in present study boys (146 cm) and girls 140.27 cm). Maximum increase in mean weight has been seen 11 years of age in both boys and girls children. The study by Saheb and Rajendra Prasad, (2009) showed that the mean weight for boys and girls 6 years is 18.26 kg and 17.72 kg respectively. This study is similar and shows that the mean weight for boys and girls at 6 years is 18.16 kg and 16.3 kg respectively. The peak increase in weight was seen between 10 and 11 years in both boys and girls children.

Nutritional status according to water lows classification "weight for height" normal, mild, moderate and sever wasting in 6 year was found 36.36%, 36.36%, 22.72% and 4.54% respectively. Wasted children were more in girls than the boys. Kalil and Khan

(2004) present study is slightly different from the study which showed the age group of 10 to 12 was observed to be at the highest (31.81%) risk of wasting. The sex was distribution of weight for height found only 46.15% boys and 27.27% girls was normal and 53.85% boys and 72.73 % girls were suffering from different degrees of malnutrition. The nutritional status according to water lows classification (height for age) was found children of 11 ages were having very high percentage (47.61%) of moderately impaired nutritional status. (Panda *et al.*, 2000) is reported School children of Ludhiana city reported mild stunting in only 20.7% children were moderate and sever degree of stunting 5.5% and 5.6% children respectively.

According to sex wise distribution it showed that boys were more normal than the girls. Similarly the number and percentages of girls with mild and moderately impaired nutritional status were higher than the boys. According to weight for age maximum number of

moderate malnutrition was found 8, 9 and 12 years of age group, which is very much alarming. A study conducted by Sundaram *et al.*, in school children of Madras city reported prevalence of grade I malnutrition as 30.5% of grade II malnutrition as 42.5% and of grade III malnutrition as 21.5% (Sundaram *et al.*, 1978). The percentage of severe malnutrition was seen in the age group of 9 and 10. The sex wise distribution of nutritional status and found 55.86% boys and 76.61% girls were suffering from different degrees of malnutrition. In sex wise distribution it showed that boys were more normal, mild, and moderate than the girls. In compare to boys and girls nutritional status it observed boys were more normal than the girl's children. Regarding the possible explanations of such results, it may be started that the illiteracy of mother, poverty and children frequently suffer from different type of diseases.

In the present study total of 155 students (78 boys and 77 girls) of aged group 6-12 years rural tribal children were participate. The study found that the nutritional status for both boys and girls were very poor. According to water low's classification, 53.85% boys and 72.73 % girls and 37.17% boys and 58.44% girls were suffering from different degrees of wasting and stunting gradually. It's noticed that the nutritional status as per 'weight for height' focused more severity than the nutritional status as per 'height for age'. According to Gomez classification, 56.4% bots and 70.66% girls were suffering from different degrees of under nutrition. It comparison to height, the weight of the children was showing less severity. The major factors identified for this problem is illiteracy of mother, because literacy and schooling levels, especially of mothers, are known to affect the style and goals of child care. In present study 62.58% mother were illiterate, this could have been a factor of poor health

conditions of children. Other caused of poor nutritional status of children may be poor family background of the children, lack of well latrine facility and unprotected source of drinking water.

In the study, compare with boys and girls nutritional health status. It's appeared that wasting, stunting and under nutrition was much higher in girls 72.71%, 58.44% and 76.61% respectively than the boys 53.83%, 37.17 % and 56.4% respectively. Caused of much poor nutritional status in girls may be boys are given first priority with the available food within the family and the girls children were victim of negligence in the poor family due to lack of education. The nutrient intake of tribal children in study area it found that the diet system of their family were very poor. They were habituated to consume the rice and one locally available vegetable but not in recommended amount. Parent cannot buy a variety of vegetables. They are not able to talk milk, fat and oil and meat properly as a daily diet. Only one kind of food can use as daily food which are not sufficient for their body growth. The reason was their economically crisis and poor family background. So, the fewer in take in amount and the absence of variation in vegetable are causing in energy, vitamin and protein. All are directly related to malnutrition.

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How to cite this article:

Manabika Debbarma, Lord Litan Debbarma and Dipak Nath. 2018. Nutritional Health Status of Rural Tribal Children in Khowai District of Tripura. *Int.J.Curr.Microbiol.App.Sci*. 7(09): 3170-3183. doi: <https://doi.org/10.20546/ijcmas.2018.709.395>