

कला एवं धर्म शोध संस्थान, लोक कल्याणकारी ट्रस्ट, वाराणसी  
 Refereed, Peer Reviewed Quarterly Journal Approved by UGC CA

# कला सरोवर

## KALA SAROVAR

( भारतीय कला एवं संस्कृति की विशिष्ट शोध पत्रिका )



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# Nutritional Status of the Children Suffering From Encephalitis

(With special reference to Muzaffarpur district)

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## Abstract:

*In some districts of Bihar, especially in Muzaffarpur, Sitamarhi and Motihari, encephalitis has emerged as a serious disease, which is affecting young children and thousands of children have died due to this disease. There has been a lot of research to find out the cause of encephalitis, but the cause of this disease is not yet known, some research indicate that litchi is the main cause of this disease, other researchers indicated that, empty stomach, unhygienic condition and malnutrition are the main factors of the encephalitis. Keeping in mind all these things, the present study has been done. A total of 95 children (Age group 6-12 years) who were previously suffering from encephalitis were selected (from SKMCH, Muzaffarpur) for study through systematically random sampling. Data were collected from secondary sources. Information about socio-economic details, body height (cm), weight (kg) collected from skmch office record. Malnutrition was calculated with the help of **AnthroPlus** software. It was found in the study that most of the children belonging to the general category and 80 percent of the children were from the joint family, a severe lack of financial prosperity was found in almost all the children. The nutritional status of these children was very poor in almost all the children. The nutritional status of these children was very poor and girls were more malnourished than boys. Joint family, weak economic condition and malnutrition were found in most of the respondents and the prevalence of encephalitis in some special castes or category is necessitating further study in this area.*

**Keyword :** Encephalitis, Nutritional Status, Normal, Malnourished.

## 1. Background:

As soon as the onset of summer, cases of Acute encephalitis syndrome (AES), begin to appear. Every year in Bihar, hundreds of children die due to this disease. Acute encephalitis syndromewhich is locally known as glaucoma, is feared by the disease in Muzaffarpur and surrounding districts every year. After Muzaffarpur, the maximum number of cases come from Motihari and Sitamarhi districts. From 1995, the disease knocked in the area but from 2010, the cases started coming up every year. There have been more than ten thousands cases of Acute Encephalitis Syndrome in the last 10 years in Bihar, in which about 120 children have died in only 2019. Most of the deaths have been due to hypoglycemia or low blood sugar. Symptoms of hypoglycaemia are usually seen in patients with meningitis. These relationships were established after the two years of research. Acute encephalitis syndrome is also called meningitis. This is such a dangerous and mysterious disease that even the experts have not been able to find out the exact reason for it. In fact, there is a lack of sugar and sodium in the blood of children in the

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fever. Not getting proper treatment at the right time can lead to death. In a study, Dr. Shah and his team of doctors had carried out an investigation into the outbreak of the disease in the Muzaffarpur district between 2014 and 2016. His study concluded that the virus, bacteria or an infection was not responsible for AES in the district. Muzaffarpur is a major lychee growing region, many researchers and doctors have shown a relation between lychee and AES and blamed the deaths on eating lychee fruit on an empty stomach.

Several studies have shown the relationship between malnutrition and encephalitis. Study found that most children suffering from encephalitis had poor nutritional status. The mental and physical development of children is being hampered due to malnutrition. Problems due to lack of nutrition include loss of weight, serious diseases, lack of mental development, loss of weight and physical ability etc are challenging problems for our country specially in Bihar state and now the association of encephalitis with malnutrition is pointing to a very dangerous situation. Even after researching in India and also abroad, we see that whatever research has been done regarding encephalitis, their finding is different. So far, the exact cause of encephalitis has been still unknown. Depending on the symptoms, the disease is still being treated and every year, in the months of May and June, children from different towns specially in Muzaffarpur town, in Bihar face trouble from this disease. Therefore, keeping in mind all these facts, the present study has been done with the aim of finding the relationship between encephalitis and nutritional and health status of the children.

## 2. Methodology:

A total of 95 children (Age group – 6 -12 years) who were previously suffering from encephalitis were selected (from SKMCH, Muzaffarpur) for study through systematically random sampling. Data were collected from secondary sources. Information about socio-economic details, body height (cm), weight (kg) collected from SKMCH office record. Malnutrition was calculated with the help of **AnthroPlus** software (developed by WHO 2007), as Severe thinness ( $< -3SD$ ), Thinness ( $\geq -3SD$  &  $< -2SD$ ), normal ( $> -2SD$  &  $< +1SD$ ), Overweight ( $> +1SD$  &  $\leq +2SD$ ) and Obesity ( $> +2SD$ ) for **BMI-for-age**. Normal, Mild underweight ( $> -2SD$  &  $< -1SD$ ), Moderate underweight ( $\geq -3SD$  &  $< -2SD$ ), and Severe underweight ( $< -3SD$ ) for **weight-for-age** and Normal, Mild stunting ( $> -2SD$  &  $< -1SD$ ), Moderate stunting ( $\geq -3SD$  &  $< -2SD$ ) and Severe stunting ( $< -3SD$ ) for **height-for-age** according to WHO 2007 classification, and compared with the World Health Organization (WHO) 2007 classification, based on BMI-for age (z-score), Weight-for-age (z-score) and Height-for-age (z-score). Further, appropriate statistical techniques were applied to derive the results of the present study.

## 3. Results & Discussion:

Table-1

Distribution of respondents according to the socio-economic characteristics.

| Variables     | Frequency (n) | Percentage (%) |
|---------------|---------------|----------------|
| Age           |               |                |
| • 6-8 years   | 32            | 33.68          |
| • 8-10 years  | 37            | 38.95          |
| • 10-12 years | 26            | 27.37          |
| Gender        |               |                |
| • Male        | 51            | 53.68          |
| • Female      | 44            | 46.32          |



|        |    |       |    |       |    |       |    |       |
|--------|----|-------|----|-------|----|-------|----|-------|
| Male   | 23 | 41.18 | 16 | 31.37 | 14 | 27.45 |    |       |
| Female | 14 | 31.82 | 24 | 54.54 | 05 | 11.36 | 01 | 02.27 |

The sex wise distribution of respondents for their nutritional status is shown in table - 3. The present study showed that only 11.36 percent female children were normal while 27.45 percent male children were normal. In similar way, the thinness of nutrition was present in 54.54 percent (female children) and 31.37 percent (male children). The severe thinness level was not found in any children while only one female children were found in overweight.

**Table 3**  
Nutritional Status of Children as Per Weight-For-Age

| Sex of children | Severe underweight < -3SD |       | Moderate underweight $\geq -3SD$ & < -2SD |       | Mild underweight > -2SD & < -1SD |       | Normal |       | Total |     |
|-----------------|---------------------------|-------|---|-------|----------------------------------|-------|--------|-------|-------|-----|
|                 | (n)                       | (%)   | (n)                                       | (%)   | (n)                              | (%)   | (n)    | (%)   | (n)   | (%) |
| Male            | 04                        | 07.84 | 15  | 29.41 | 19                               | 37.25 | 13     | 25.49 | 51    | 100 |
| Female          | 05                        | 11.36 | 09  | 20.45 | 19                               | 43.18 | 11     | 25.00 | 44    | 100 |

Anthropometric measurements are the most widely used indicators to assess the physical growth of children in a community. The mean weight and length of children were assessed on the basis of classification of WHO 2007 for their categorization into normal, mild, moderate and severe malnutrition. The nutritional status are presented in -3 the percentage wise distribution of children revealed that 25.49 percent boys and 25 percent were girls were normal. Mild underweight found in 37.25 percent boys and 43.18 percent of the girls. The moderate underweight was observed in 29.41 percent boys and 20.45 percent of the girls. The severe level of underweight was more in girls (11.36 percent) than boys (07.84 percent).

**Table 4**  
Nutritional Status of Children as Per Height-For-Age

| Sex of children | Severe stunting < -3SD |     | Moderate stunting $\geq -3SD$ & < -2SD |       | Mild stunting > -2SD & < -1SD |       | Normal |       | Total |     |
|-----------------|------------------------|-----|--|-------|-------------------------------|-------|--------|-------|-------|-----|
|                 | (n)                    | (%) | (n)                                    | (%)   | (n)                           | (%)   | (n)    | (%)   | (n)   | (%) |
| Male            | -                      | -   | -                                      | -     | 21                            | 41.18 | 30     | 58.82 | 51    | 100 |
| Female          | -                      | -   | 05                                     | 11.36 | 25                            | 56.82 | 14     | 31.82 | 44    | 100 |

Children were categorized into their nutritional grade on the basis of their height-for-age and results obtained are presented in table - 4 and it was found that the 58.82 percent and 41.18 percent of the boys were found in normal and mild stunting categories, respectively. It is remarkable that boys were not found in moderate stunting and severe stunting categories, while 11.36% of the girls were moderate stunting, followed by 56.82 percent mild stunting and 31.82 percent normal height for age respectively.

#### 4. Conclusion:

At present, the nutritional condition of children in Bihar is much worse than many other states, and same situation is visible in children suffering from encephalitis. The condition of both boys and girls suffering from encephalitis is in poor health condition. Due to socio-demographic study, it is clear that most of the children have many siblings and most of the respondent's family earns insufficient or very less income. Less income lead to Lack of basic amenities like safe drinking water, proper housing, drainage and excreta disposal make this population vulnerable to infections which further compromises the nutrition. Study also find that the most of the encephalitis patients were belonging to joint family and the prevalence of this disease was found more in OBC and SC/ST category, in view of all these facts, there is an urgent need of broad study on this disease to know why the prevalence of encephalitis is more in low income group, joint family and some category.

#### 5. Recommendation:

Government should organize training programme related to health and encephalitis for parents to understand the symptoms and precaution against encephalitis.

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