

# Epidemiological Relation between Public Health Hazards and Nutritional Status of Primary School Children in Bankura District, West Bengal

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## ABSTRACT

The health and nutritional status of schoolchildren is an index of national investment in the development of their future workforce. Malnutrition affects the child's physical and cognitive growth and increases susceptibility to infection, while indirectly affecting the country's economic growth. The school age group (5-18 years) covers the period between pre-school age and adult life. In India, almost a third of the population is a school-age child. The age of primary school is a dynamic phase of physical growth and mental development of the child. Studies show that nutritional deficiencies and poor health among primary school children are among the causes of low enrollment rates, high absenteeism, early school leaving and poor classroom performance. The current position regarding the health and nutritional status of children in our country is very unsatisfactory.

**Keywords:** Fluorosis, Socio Economic, Public health

## INTRODUCTION

Nutrition is one of the most important constraints in achieving the MDGs. Improving nutrition is essential to reduce extreme poverty. The number and proportion of hungry people in the world are declining as the global economy recovers and food prices remain below their peak levels, but the number of undernourished people remains unacceptably high – higher than before the food price and economic crisis, making it more difficult to meet the internationally agreed hunger-reduction targets [1]. The nutritional status of school-aged children impacts their health, cognition, and subsequently their educational achievement. The school is an opportune setting to provide health and nutrition services to disadvantaged children. Yet, school-aged children are not commonly included in health and nutrition surveys. An up-to-date overview of their nutritional status across the world is not available [2]. Under nutrition is a major public health problem among children worldwide, particularly in the developing countries like India [3]. One third of the children under 5 years old worldwide are moderately or severely undernourished [4]. The cost of lost productivity, illness and death due to malnutrition amounts to US\$ 10–28 billion or 3%–9% of the gross domestic product (GDP).

## EPIDEMIOLOGICAL PATTERNED & MECHANISMS USED IN PUBLIC HEALTH INVESTIGATION

Epidemiological patterned consist of different protocol. This protocols are including of (1) descriptive, organizing data by time, place, and person study (2) analytic, incorporating a case-control or cohort study through population based investigation or (3) experimental. Epidemiology utilizes an organized approach to problem solving by: (1) confirming the existence of an epidemic and verifying the diagnosis; (2) developing a case definition and collating data on cases; (3) analyzing data by time, place, and person; (4) developing a hypothesis; (5) conducting further studies if necessary; (6) developing and implementing control and prevention measures; (7) preparing and distributing a public report; and (8) evaluating control and preventive measures [5]. Other factors like increase in life expectancy, resulting primarily from decline in child mortality, control of infectious diseases, extensive use of antibiotics, improvement in nutritional standards and access to health services, etc. have also contributed to increase in life expectancy in the population. With increase in the number of aged people, there will be higher incidence and prevalence of diseases like Hypertension, Diabetes, Cancers and the whole range of geriatrics problems .Socioeconomic status has traditionally been defined by education, income and occupation. Socioeconomic status, whether assessed by income, education or occupation, is linked to a wide range of health problems, including low birth weight, malnutrition, mortality rate, morbidity rate, heart disease, diabetes, infectious diseases etc .In india the Disease fluorosis which is caused by excessive injection of Fluoride morethan 1 as per BIS (Buerue of Indian standard by drinking water, increasing day by day.

### MAGNITUDE OF FLUOROSIS IN INDIA AND WEST BENGAL – BANKURA

Fluorosis has been prevalent in India for seven decades. It was first noticed in early 1930s, among cattles by the farmers of Andhra Pradesh. They noticed inability of the bullocks to walk due to painful and stiff joints . The episode was repeated within six months when new pairs of bullocks were acquired. It was during the year later, the same disease was detected in human beings and Short et al published the first report on endemic fluorosis in India. During the period from 1960 to 1986, nine states in India had been identified as endemic fluorosis areas. Presently, the 17 states India have been classified as endemic fluorosis areas. The abnormal high natural concentration of fluoride bearing minerals are found in the rocks which are irregularly distributed in India, is responsible for endemic fluorosis. These natural fluoride bearing minerals identified in India are;

<b>A) Fluoride</b>	: Fluoride (CaF <sub>2</sub> ) and Cryolite (Na <sub>3</sub> AlF <sub>6</sub> )
<b>B) Phosphates</b>	: Fluorapatite Ca <sub>5</sub> (PO <sub>4</sub> ), 3F
<b>C) Silicates</b>	: Topaz Al (F.OH) 2 SiO <sub>4</sub>
<b>D) Mica Group</b>	: Magnesium mica and lithium mica

## NUTRITIONAL STATUS OF PRIMARY SCHOOL CHILDREN BANKURA DISTRICT

The nutritional status of school children can be quickly assessed by anthropometric measurements on large population. The body indices such as height for age, weight for height, clearly indicate nutritional status of children. The mean height of younger and older children was almost similar. In both the groups mean height found lower than NCHS standard value by 6.87 - 11.78 per cent. In similar way weight in both age groups found lower than NCHS standard, by 8.08 per cent in 9 year age group while 9.76 per cent in older group age group. The height of boys and girls found lower by 5.3 and 5 percent, while weight of boys and girls by only 1.77 and 3.6 percent respectively. There was highly significant differences found in mean height and weight of children with respect to their NCHS norms value in both groups by age (22.72\*\*, 35.44\*\* respectively) and (22.33\*\* boys and 24.73\*\* girls) gender. They are unable to reach the optimum level of height and weight of NCHS standard norms. Many research studies indicated that malnutrition including weight, wasting and stunting constituted major health problems among school children. In present study majority of children (51.85%) exhibited one or more type of malnutrition (wasted, stunted and wasted and stunted nutritional category). While 48.2 per cent exhibited normal nutritional category. This indicated that more than 50 per cent of children suffering from malnutrition.

### Academic Performance

Improved nutritional status has a positive and direct impact on academic achievement. When children's basic nutritional and fitness needs are met, they have the cognitive energy to learn and achieve. Schools continue to be a core place for students to learn and practice healthy eating habits. Researchs showed that healthy, well-nourished children are more prepared to learn, more likely to attend school and class, and able to take advantage of educational opportunities.

### Socio Economic Status

The nutritional status of children does not only directly reflect the socioeconomic status of the family and social wellbeing of the community, but also the efficiency of the health care system, and the influence of the surrounding environment. The macro level association between poverty and child malnutrition is well documented with the risk factors for poor nutritional status largely coinciding with the correlates of poverty. Malnutrition is a result of more complex social and behavioural determinants that affect child feeding and rearing. Socioeconomic and environmental conditions, together with feeding practices, are important determinants of malnutrition in developing countries

## Extracurricular activities

The main motto of extracurricular activities is personality development. These are the activities which promotes students to take up their study in a healthy manner. All-round development as well as intellectual development is not the domain of curriculum, these characteristics can be judiciously fulfilled by co-curricular activities. Extracurricular activities include stage performance, sports, student newspaper, literary, acting and drama, music, cultural activities.

## Conclusion

Our study highlights that children from rural areas and belonging to lower socio - economic classes are more nutritionally deprived than their counterparts. This difference highlights the necessity of a differential approach in combating malnutrition. The present study also shows reveals that the rural school going children of Bankura district are suffering from different grades of malnutrition. The clinical sign (General appearance) observations also supported the result of anthropometric status of children. It was revealed that the majority of rural school children suffer from under - nutrition compared to the urban school children according to their BMI score, waist circumference and waist - hip ratio.

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