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# Nutritional Status of Primary School Children in Different Parts of India: A Review

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## ABSTRACT

Nutrition is a critical determinant of human health. Despite the ICDS (Integrated Child Development Services) having started as far back as 1975 to specifically address the health, nutritional and educational needs of children from the ante-natal period to six years after birth, malnutrition is still prevalent in India. In this context, this review has been done to explore the trends in the prevalence of wasting, stunting, overweight, and obesity among children both in the rural and urban areas of different states in India.

**Key Words:** Malnutrition, Underweight, Stunting, Wasting, Obesity

## INTRODUCTION

The development of children into healthy adults is dependent on their growing, starting from their antenatal period, in a healthy environment and having balanced nutrition. Today, the majority of the avoidable infant and child mortalities results from malnutrition. The most prevalent effect of poverty on children is under nutrition. Poverty is a key determinant of under nutrition, through the unhealthy physical environment, domestic stress and fatigue-related early stopping of the mother's milk also contributes to malnutrition along with the lack of education of mothers<sup>1,2</sup>. WHO estimates that, in the world, 27 percent of the children fewer than five years of age have less than the normal weight-for-age, and that most of these children live in the developing countries<sup>3</sup>.

Nutrition of primary school children determines their life time health, strength and intellectual vitality. This span of life is a dynamic stage of physical growth and mental development<sup>4,5</sup>. But still now in India, the position of health and nutritional status of the school-age children are not satisfactory level<sup>6</sup>. The national family health survey (NFHS-4) data reported that 37.5% of children were underweight in India out of which 29.1% in urban and 38.3% in rural and it varies across the states. The survey data also reported that stunting

and wasting was 38.4% and 21.0% in respectively<sup>7</sup>. There are no any other efforts to supplementary feeding program for school children in age group 5-14 years except mid-day-meal programme<sup>8</sup>.

Side by side, WHO health report (2006) revealed that "double burden" of disease threats in the many countries. It is noticeable that under-nutrition and obesity coexistence within the same country, community and even within the same household. Lack of inadequate nutrition may causes this double burden to the pre-natal, infant and young child due to exposure of energy-dense, high-fat, poor micronutrient and poor physical activity<sup>9</sup>.

Based on the different study in various parts of our country, the present review work focused the nutritional status of children at a glance.

## DISCUSSION OF REVIEW

In Karimnagar city of Telangana State a descriptive and cross sectional study was conducted among school children aged 6 to 11 years from November 2011 to October 2012. The study reported that the underweight children were 29.3% in rural areas and 22.2% in urban areas. Similarly stunted children

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were 21.5% in rural and 16.2% in urban areas. Major finding of the study was under nutrition. The study suggested that health education for parents, students as well as school teachers is required to improve the situation<sup>10</sup>. In another descriptive cross sectional study which was conducted in 6 to 10 years old children in government Primary School of urban slum of Kurnool, Andhra Pradesh. In that study, 101 study subjects were selected by systematic random sampling and the prevalence of under nutrition was reported according to the Indian Academy of Pediatrics (IAP) classification. Results reflected that 38% children had normal weight for age and 63% were undernourished. The grade –I under nutrition had 35.64%, Grade-II under nutrition had 15.84%, grade-III under nutrition had 10.89% and grade-IV under nutrition had not found. It was also reported that female children were more malnourished than male children. Malnutrition was more seen in the age of 7 to 9 years of children. Study suggested that nutrition education may be playing an important role for their health promotion<sup>11</sup>.

In Bareilly district of Uttar Pradesh, across sectional study was conducted among 5 to 15 years of 512 school children. Study reported that the 46.8% children normal, 38.4% underweight, 33.3% wasted and 19.9% stunted respectively. Study also reported that maternal education positively associated with number measures of child health and nutritional status and children from joint family were more undernourished than nuclear families children. Children of non working mother have better nutritional status than children of working mother because non working mother take more time for care. In that study various recommendations were made to achieve optimal nutritional status including fortified food items, effective infection control, and training of public healthcare workers and skills-based nutrition education, etc.<sup>12</sup>.

Another cross-sectional study was carried out in 484 children of 6-12 years age in Mandya district, Karnataka. The prevalence of underweight was 32.3% and 28.3% in boys and girls respectively. The prevalence of stunting was 29.1% in the boys while it was 26.5% in the girls. Study also indicated the different types of nutritional deficiencies and finally suggests the balance diet consumption<sup>13</sup>.

In Mysore city of Karnataka, another cross sectional study was carried out by Ashok et al. to find out the scenario of nutritional status in private and government school. In that study, 1566 school children were studied from one private and one government school. The overall prevalence of underweight, overweight and obesity was 24.5%, 8.4% and 4.1%, respectively. The findings also indicated that prevalence of underweight was 32.5% and 18.2% in government school and private school respectively. Study reported that the prevalence of overweight and obesity emerged in increasing trend with age in private school children and also revealed that higher economic class children under private

school involved sedentary life style and becoming overweight or obese and<sup>14</sup>. In a study in West Bengal, three anthropometric tools used to determine the nutritional status of 3564 primary school children aged 8 to 9 years from 183 government aided school. A high prevalence of thinness was found in boys (65.4%) and girls (65.3%). The results indicated that 26.1% boys and 22.9% girls were stunted. The prevalence of underweight in boys (39.7%) and girls (36.5%) was also reported<sup>15</sup>.

In Dakshina Kannada District, Karnataka State, a descriptive cross sectional study was conducted on 424 primary schools children aged 5 to 14 years consisting 194 from 2 government schools and 230 from 2 private schools. Study reported overall prevalence of stunting was 19.2%. It was more among boys (22.4%) than girls (15.7%). The prevalence of underweight and thinness was 26.5% and 26.5% respectively. The study also reported that nutritional status of primary school children is more unsatisfactory in respect to government school<sup>16</sup>.

In 2011, Izharul Hasan carried out a cross sectional study in the Azad Nagar from Urdu medium government higher primary schools and total 500 children were covered. It was reported that total malnutrition was 52% out of which boys and girls were 53.85% and 49.25% respectively. This study indicated that the boys were suffering more from stunting as compared to girls (41.47% vs 38.81%)<sup>17</sup>.

In north India (Kinnaur, Himachal Pradesh), a community based cross-sectional survey was conducted to assess nutritional status among tribal pre-school children having age group between 3 to 5 years and total sample size was 350. The overall prevalence of underweight children was found 21.4% and the prevalence of stunting and wasting was reported 27.4% and 11.1% respectively. Underweight and wasting was found more in male than female children<sup>18</sup>.

In another study, nutritional status of school age children in Rural Block of Kashmir was conducted among 5-14 year old school children. Study reported that overall prevalence of 11.1%, 9.25% and 12.3% for underweight, stunting and wasting respectively<sup>19</sup>. In December 2011 and February 2012, another cross sectional study was conducted among 5-13 years old school children in urban area of Ahmedabad. Total 28,256 children were sorted out (boys-15,087 and girls-13,169) and the study was revealed that 8,319 (29.44%) were belonged to underweight in terms of body mass index standards of children. But 221 (0.78%) of children were either overweight or obese. Study also pointed out that the nutrition and health standards of government school children were unsatisfactory as compared to the ICMR standards<sup>20</sup>.

Osei et al. (2010) was conducted a study on a hilly agrarian community in Tehri Garhwal District, Uttarakhand. Population of this area engages mainly in farming. The study was

covered 499 children of 6 to 10 years. Results of the study highlighted that underweight, stunting, and wasting were present in 60.9%, 56.1%, and 12.2% of respectively<sup>21</sup>.

In Odisha, a community based cross sectional study was carried out in an urban slum area of Berhampur city from October 2015 to September 2016. Pre-tested semi structured questionnaires were designed for data collection and measured weight, height and MUAC of the children. The study revealed that 69% of 300 children were belonged to under nutrition. The forms of under nutrition were underweight (55.3%), wasting (75%) and stunting (42%) respectively. The study also showed that maternal education, faulty feeding practice and hygienic practice are tributary factor of malnutrition<sup>22</sup>.

This was another cross sectional study conducting among Santal-Munda tribal community from Amdanga block of North 24 Parganas district, West Bengal. Data was collected on the basis of pretested questionnaire and house to house visit following interview and examination. Study reported that prevalence of underweight was 38.65%, stunting 21%, and wasting 32.7% where as severe form of underweight, stunted, and wasted was 8.40%, 4.20% and 9.20% respectively. The study resulted that preschool children were more worsen condition than school going children. Study also stated that majority of families were illiterate and does not access into modernization<sup>23</sup>. A high prevalence of poor nutritional status was found in another study among tribal children from a community based cross-sectional study in ITDA Areas in nine States of India including Andhra Pradesh, Gujarat, Kerala, Karnataka, Maharashtra, Madhya Pradesh, Orissa, Tamil Nadu and West Bengal. The study covered 14,587 children aged between 0-5 years and revealed that the prevalence of under-weight, stunting and wasting was 49%, 51% and 22%, respectively. The result of this study indicates that under nutrition is still serious health problem issue. This study was also revealed that maternal literacy, morbidities pattern and socio-economic status was also most liable factor for undernutrition<sup>24</sup>.

Prevalence of obesity among 6-15 years old school children in Kochi, Kerala, and South India was reported by Cherian et al. in 2012. Total 1634 children were studied and reported that obesity was 3.0% and 5.3% for boys and girls respectively. The study was also reported that obesity (7.5%) and overweight (21.9%) were highest in high economic status and lowest (1.5% and 2.5% respectively) among low economic status. A. Girls of high economic status were more documented of obesity and overweight<sup>25</sup>.

There was a descriptive study conducted in Chandigarh city, Northern India during the period from January 2012 to December 2012 among 3,793 school children. In that study, underweight was found to be 73.3%, overweight was 2.3%, and obese was 1.5%. Until now, under nutrition is a major public

health problem in developing countries like India. This study was also revealed that prevalence of over nutrition is high in children belonging to high socio economic status in India<sup>26</sup>.

## CONCLUSION

Most of the surveys have showed that health status of school children are at sub optimal level. This stage of life is an intense anabolic phase when all nutritional requirements are increase. The stage also determines their life time health, strength and intellectual vitality. From literature, it is found that the health and nutritional status of school children are very poor especially in rural areas because of low socioeconomic status, pattern of father's occupation and low education of parents. Literature also indicated that under nutrition was raised in tribal children in India. Most of research was revealed that lack of education, low socio economic status, unhygienic condition, and lack of medicare facility was liable for severe under nutrition in tribal children.

Finally, to improve the condition, literature suggests the various recommendations. For primary school children, nutritional supplements should be launched as mid morning supplements through ICDS by the government especially in rural areas. Special nutritional packages for underweight, stunting and wasting children should be given in ICDS centre by the government. Nutritional seminar should be conducted to increase of nutritional knowledge in school level by nutritionist.

Apart of that nutrition education must be included from pre-primary to all education system Tribal children were more under nourished, so healthcare facility and nutrition supplement should be specialized for this group of children.

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