AJHS.
Asian Journal of Home Science
Volume **8** | Issue 2 | December, 2013 | 626-630

Research Paper

Nutritional status of pre-school children of ICDS: An assessement using new W.H.O. growth standards

■ MANOJ KUMAR **AND** PRAMILA PRASAD

Received: 02.09.2013; **Revised:** 03.10.2013; **Accepted:** 27.10.2013

■ **ABSTRACT :** India accounts for more than 3 out of every 10 stunted children in the world. Undernutrition is substantially higher in rural than in urban areas. Short birth intervals are associated with higher levels of undernutrition. More than half (54 %) of all deaths before age five years in India are related to malnutrition. To combat undernutrition in young children, the Government relies largely on the ICDS. Begun in 1975, the scheme provides health and nutrition education for mothers and young children, along with other services, such as supplementary nutrition, basic health and antenatal care, growth monitoring and promotion, preschool non-formal education, micronutrient supplementation and immunization. In 2008, the Government of India introduced the new WHO Growth standards through ICDS and NRHM. For the assessment of nutritional status, anthropometry measurement, WHO growth standards were used. The data were analysed according to New WHO Growth standards 2006 and compared to data of NFHS-3(2005-06). More than 60 per cent pre-school children of AWCs of Banka district were undernourished *i.e.* 68 per cent children underweight, 64 per cent stunted and 54 per cent wasted, which was more than ratio of India. The measurement of MUAC, BMI, HC, CC, showed that girls were 5-10 per cent more undernourished than boys. In General appearance 21 per cent children were thin whereas 48 per cent children sickly. Only 26 per cent children were getting adequate diet in which only 9 per cent children were getting balance diet, 74 per cent children were not getting adequate diet. Only 38 per cent children in AWCs were found to get benefit of Supplementary nutrition in which only 11 per cent AWCs maintained recommended norms of SNP of ICDS. To find the true picture and combat undernutrition the new WHO Growth chart standards in ICDS should be strictly implemented in proper way, then ensure the balance diet and improve the quality and quantity of supplementary nutrition.

■ **KEY WORDS :** Growth standards, W.H.O., Nutrition, ICDS, Diet

■ **HOW TO CITE THIS PAPER :** Kumar, Manoj and Prasad, Pramila (2013). Nutritional status of pre- school children of ICDS: An assessement using new W.H.O. growth standards. *Asian J. Home Sci.*, **8** (2): 626-630.

See end of the paper for authors' affiliations

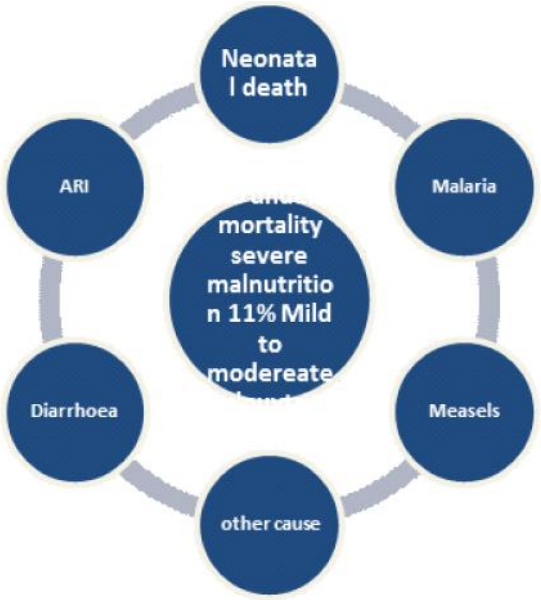
Correspondence to **:**
MANOJ KUMAR
Department of Home Science Food and Nutrition, T.M. Bhagalpur University, BHAGALPUR (BIHAR) INDIA
Email: manoj_kumar9210@yahoo.com

Malnutrition is the most widespread condition affecting the health of children. Scarcity of suitable foods, lack of purchasing power of the family as well as traditional beliefs and taboos about what the baby should eat, often lead to an insufficient balanced diet, resulting in malnutrition. In India, 20 per cent of children under five years of age suffer from wasting due to acute undernutrition. More than one third of the world's children who are wasted live in India. Forty three per cent of Indian children under five years are underweight and 48 per cent (*i.e.* 61 million children) are stunted due to chronic undernutrition. India accounts for more than 3 out of every 10 stunted children in the world. Undernutrition is substantially higher in rural than in urban areas. Short birth intervals are associated with higher levels of undernutrition.

The percentage of children who are severely underweight is almost five times higher among children whose mothers have no education than among children whose mothers have 12 or more years of schooling. Undernutrition is more common for children of mothers who are undernourished themselves (*i.e.* body mass index below 18.5) than for children whose mothers are not undernourished. Children from scheduled tribes have the poorest nutritional status on almost every measure and the high prevalence of

wasting in this group (28 %) is of particular concern.

Poor nutrition as a contributing factor to under-five mortality:



In developing countries, under-five mortality is largely a result of infectious diseases

and neonatal deaths. Undernutrition is an important factor contributing to the death of young children. If a child is malnourished, the mortality risk associated with respiratory infections, diarrhoea, malaria, measles, and other infectious diseases is increased. Formulas developed by Pelletier *et al*. (1994) are used to quantify the contributions of malnutrition to under-five mortality. More than half (54%) of all deaths before age five years in India are related to malnutrition. Because of its extensive prevalence in India, mild to moderate malnutrition contributes to more deaths (43%) than severe malnutrition (11%).

To combat undernutrition in young children, the Government of India relies largely on the Integrated Child Development Schemes (ICDS). Begun in 1975, the scheme provides health and nutrition education for mothers of infants and young children, along with other services, such as supplementary nutrition, basic health and antenatal care, growth monitoring and promotion, pre-school non-formal education, micronutrient supplementation and immunization. These services are delivered through a network of some 700,000 community Anganwadi workers. The effectiveness of ICDS has been limited, however, by a variety of factors, ranging from the limited skill and knowledge of Anganwadi workers to a lack of supervision, vacancies and flaws in programme policy, such as inadequate focus on very young children.

UNICEF is collaborating with the Government of India to increase the effectiveness of ICDS. The specific interventions supported include: strengthening the management and supervision system; improving the knowledge and skills of Anganwadi workers and increasing the time and attention they give to infants; improving community involvement through joint village situation analysis, identifying village volunteers and providing them with basic training in infant care; and increasing the number of home visits made by Anganwadi workers and volunteers in order to increase the caring behaviour of parents and improve the outreach of health services.

Assessment of physical growth:

Nutritional anthropometry is measured of human body at different age levels and degree of nutrition. Growth retardation may be first response of the body towards nutritional deficiencies while appearance of clinical sign may be final stage. Use of anthropometry measurement depends on two factors: Actual age assessment and appropriate normal value for comparison.

Growth standards:

Growth standards represent norms of growth and can be presented in tabular or graphical manner. These are obtained by either cross-sectional or longitudinal studies in large populations. Based on data obtained from US children, the National Centre for Health Statistics (NCHS) developed growth charts in 1977, which were also adopted by the WHO for international use. In the year 2000, revised growth charts provided by CDC offered an improved tool to assess child health. But these charts were again based on data obtained from US children who were formulated. Sensing the need for more international applicable growth standards, the WHO conducted the "Multicentre Growth Reference Study" (MGRS) and published the new based, multi- country project conducted in Brazil, Ghana, India, Norway, Oman and the United States. The children included in the study were raised in environments that minimized constraints to growth such as poor diets and infection. In addition, their mothers followed healthy practices such as breast feeding their children and not smoking during and after pregnancy.

The new WHO child Growth standards are unique on several accounts. They provide data in "how children should grow," and go beyond the traditional descriptive references. The new standard makes breast feeding the biological "norm" and establishes the breastfed infant as the normative growth model. The pooled sample from the six participating countries makes it a truly international standard (in contrast to the previous international reference based on children from a single country) and reiterates the fact that child populations grow similarly across the world's major regions when their needs for health and care are met, These standard also include new growth indicators beyond height and weight

that are particularly useful for monitoring the increasing epidemic of childhood obesity, such as the skin fold thickness. The study's longitudinal nature will further allow the development of growth velocity standards, enabling the early identification of children in the process of becoming under or over-nourished. (Ghai, 2009).

Introduction of new WHO child growth standards in ICDS:

The new WHO standards, globally used, prescribe how children should grow with optimal nutrition and health care. The child growth standards recognize the breastfed infant as the normative model; provide reference values for assessing childhood obesity and also the link between physical growth and motor development. With these new standards, parents, communities, child care workers, programme managers, health and care advocates will know when the nutrition and care needs of children are being compromised.

The use of this tool enables them to take timely corrective action at different levels. ICDS, since its inception, had been using Harvard standards (IAP) for the purpose of monitoring growth among children. In 2008, the Government of India decided to introduce the new WHO Growth standards through ICDS and NRHM. These standards of Weight –for Age have been adopted by India. The NFHS-3 Report has also incorporated the new growth standards and brought out the revised levels of malnutrition according to which the average level of malnutrition in the country is 42.5 per cent and severely underweight children are 15.8 per cent. As per latest available information, new WHO Growth Charts have been rolled out in 6,360 projects.

Objectives:

–To know the nutritional status of pre-school children of rural Anganwadi centres according to New WHO Growth Standards 2006.

■ RESEARCH METHODS

For the present study 50Anganwadi Centres of Banka District of Bihar were selected. Sample surveys of 300 preschool children (3-6 years) of BPL family were done. The study period was January 2011 to December 2012. For the assessment of Nutritionalstatus, Anthropometry measurement, WHO Growth Standards tools, *i.e.* height, weight, BMI, head circumference, chest circumference and mid upper arm circumference were used.

The obtained data related to nutritional status of preschool children were analysed according to new WHO growth standards 2006, and compared to data of NFHS-3(2005-06). According to new WHO growth standards, undernutrition is classified into 3 categories *i.e.* underweight (weight for age), stunting (height for age) and wasted (weight for height).

Classification of undernutrition:

S.D. classification	Weight for age	Height for age	Weight for height
>_Median-2SD	Normal	Normal	Normal
<Median-2SD to <Median-3SD	Moderate underweight	Moderate stunting	Moderate wasting
<Median -3SD	Severe underweight	Severe stunting	Severe wasting

■ RESEARCH FINDINGS AND DISCUSSION

Fig. 1 shows that 68 per cent children were underweight in which 23 per cent were severely underweight and 45 per centmoderate underweight, whereas only 32 per cent were normal. Among 64 per cent stunted, children 13 per cent were severely stunting and 51 per cent moderate, whereas only 36 per cent were normal in stunting status. In wasted status, only 28 per cent were normal who were lucky children getting standard height and weight, whereas 72 per cent children were wasting in which 60 per cent were moderate and 12 per cent severely wasting.

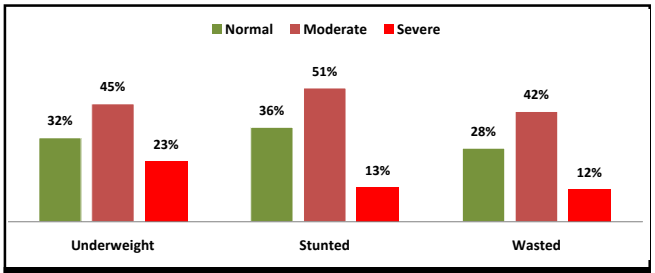


Fig. 1: Nutritional status of pre- school children

Fig 2 shows the nutritional status of Banka district compared to that of National Family Health Survey (NFHS-3) 2005-06 of India and Bihar. The data showed that underweight children of Banka district were 68 per cent whereas in India it was 43 per cent in Bihar it was 55 per cent. In reference to stunting children, the per cent of Banka district is 64 per cent whereas in India, it was 48 per cent and Bihar 55 per cent. In wasted assessment, 20 per cent children in India, and 32 per cent in Bihar state whereas 54 per cent children of Banka district were found

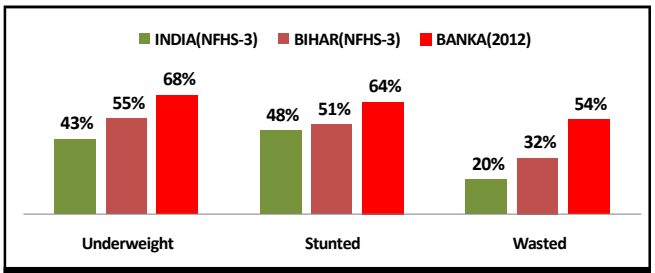


Fig. 2 : Comparison of nutritional status NFHS-3

wasted. The figure shows that in all the three categories, the undernourished children were more than NFHS-3.

Fig. 3 shows that the percentage of head circumference of boys was 58 per cent and of girls was 52 per cent (normal) whereas the percentage of moderate HC of boys was 31 per cent and in girls was 34 per cent , whereas 11 per cent boys and 14 per centgirls were severe..

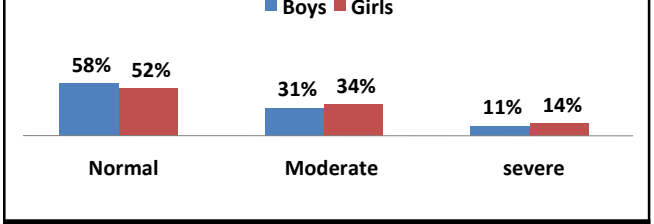


Fig. 3 : Head circumference

Fig 4 shows that the percentage of boys with normal chest circumference was 61 per cent and that of girls, was 59 per cent. The boys with moderate chest circumference were 31 per cent and severe were 35 per cent whereas girls with moderate were 8 per cent and severe were 6 per cent.

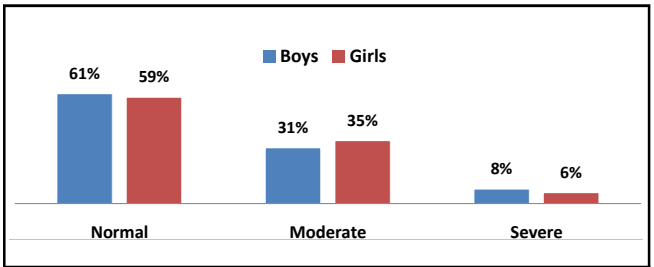


Fig. 4 : Chest circumference

Mid upper arm circumference (MUAC) measurement showed that only 21 per cent boys and 19 per cent girls were normal whereas 59 per cent boys and 56 per cent girls were moderate, 20 per cent boys and 25 per cent girls were severe (Fig. 5).

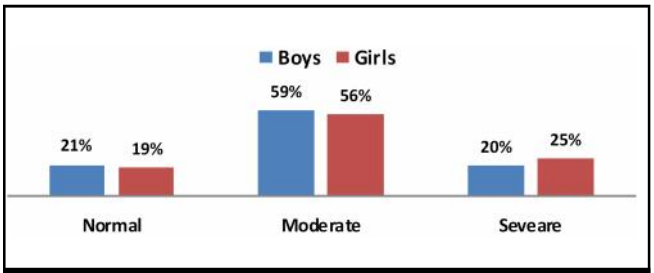


Fig. 5 : Mid upper arm circumference (MUAC)

Fig 6 shows that on body mass index (BMI) only 22 per cent boys and 18 per cent girls were normal whereas 78 per cent boys and 82 per cent girls were undernourished in which 48 per cent boys and 45 per cent girls were moderate whereas 30 per cent boys and 37 per cent girls were severely undernourished.

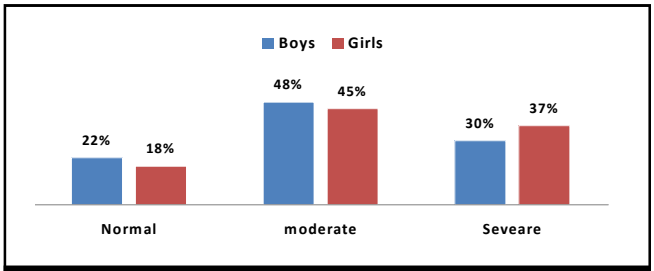


Fig. 6 : BMI (Body mass index)

Fig 7 on general appearance of children shows that only 38 per cent were normal where as 21 per cent thin and 48 per cent were sickly.

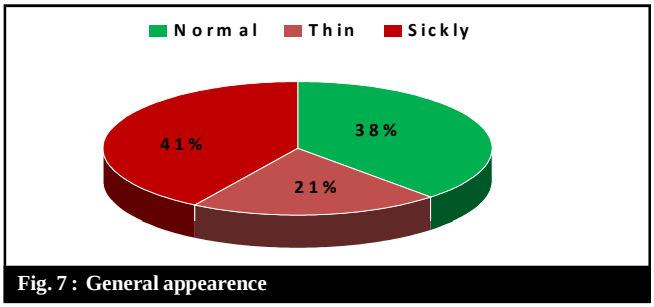


Fig. 7 : General appearence

When dietary intake of pre-school children were analysed (Fig. 8), it was found that, only 26 per cent children were getting adequate diet in which only 9 per cent children were getting balance diet, 74 per cent children were not getting adequate diet. According NFHS-3, only 27 children received SNP from Anganwadi centres in the 12 months preceding the survey. However, in the present study, 38 per cent children in AWCs of Banka district were found to get benefit of supplementary nutrition like *Khichdi*, *Halwa*, Rasia, *Pulaw* and seasonal fruits or snacks. Only 11 per cent Anganwadi centres were maintaining recommended norms of SNP, 62 per cent enrolled children were not getting

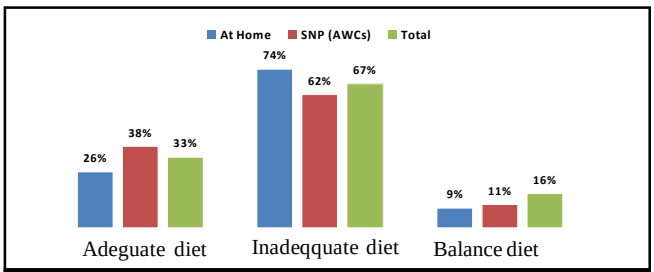


Fig. 8 : Diet of Pre-school children

recommend diet of ICDS. Overall only 33 per cent children were getting full diet including SNP of ICDS in which only 16 per cent children were getting balanced diet.

Conclusion:

According the new WHO growth standards 2006 in ICDS, children more than 60 per cent pre-school children of Banka district were undernourished *i.e.* 68 per cent children underweight, 64 per cent stunted and 54 per cent wasted. When undernourished children were compared to survey of NFHS-3 data of India and Bihar, 68 per cent children of Banka district were underweight whereas in India and it was 43 per cent and in Bihar it was 55 per cent.The other measurement of growth standards like head circumference, chest circumference, MUAC showed that girls were 5-10 per cent more undernourished than boys. In BMI status, only 22 per cent boys and 18 per cent girls were normal. In general appearance 21 per cent are thin whereas 48 per cent children were sickly. Only 26 per cent children were getting adequate diet in which only 9 per cent children were getting balance diet and 74 per cent children were not getting adequate diet. Only 38 per cent children in AWCs were found to get benefit of supplementary nutrition in which only 11 per cent AWCs maintained recommended norms of SNP of ICDS. It may be concluded that new WHO growth standards in ICDS was more relevant to assess the nutritional status of children. Inadequate diet, poor quality and quantity of SNP, poor management of AWCs were not minimising the number of undernourished children. This means, all the measures to combat undernutrition in pre-school children has not achieved the goal so far.

Recommendation:

The new WHO growth chart standards should be implemented in more powerful way in Anganwadi centres of ICDS. Proper training of AWWs and AWHs for the measurement and plotting of WHO growth standards and preparation of SNP should be done. To ensure the balance diet and improve the quality and quantity of supplementary nutrition of ICDS, the supervision must be strict and regular, the mismanagement, if any should be checked.

Authors' affiliations:
PRAMILA PRASAD, Department of Home Science-Food and Nutrition, T.M. Bhagalpur University, BHAGALPUR (BIHAR) INDIA

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