

Anthropometric Assessment of Nutritional Status of Primary School Girls (6-8 years) from Punjab

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ABSTRACT Anthropometric assessment of nutritional status of primary school girls (6-8 years) was conducted for the state of Punjab. For the above purpose 352 girls were selected randomly from randomly selected villages located in four agroclimatic zones of Punjab. They were measured for height and weight to assess their growth profile and nutritional status. The family background information for each child was collected by interviewing their parents to assess their socio-economic status. The results revealed that as per Waterlow's classification (Height for age), majority of respondents were nutritionally normal when compared with both NCHS (International) and ICMR (Indian) standards and no significant Interzonal differences were found. As per Gomez's classification (Weight for age), majority of girls were found to be moderately malnourished when compared with NCHS standards and with ICMR standards, again the sample was found to be nutritionally normal. Interzonal differences were found to be non significant for both the standards. As per Waterlow's classification (Weight for Height), majority of respondents were nutritionally normal when compared with both NCHS and ICMR standards and no significant Interzonal differences were found.

INTRODUCTION

Better health, literacy and gainful employment are the targets for human development as envisaged by the United Nations Development Programme. The qualities a person imbibes as a child deepens as he grows and appears in several subtle ways in his conduct and character as an adult. Therefore what effects the interests of children affects the well being of the entire group, of which the child is one member. It is almost an article of faith with the civilized countries that children should have opportunities for fullest development and growth towards maturity through physical, socio-emotional and spiritual well being.

Health planning is the most important component of children's well being and forms an integral part of national socio-economic planning. Rural children require considerable attention since substantial number of them are raised in families which due to their socio-economic conditions are unable to provide the required

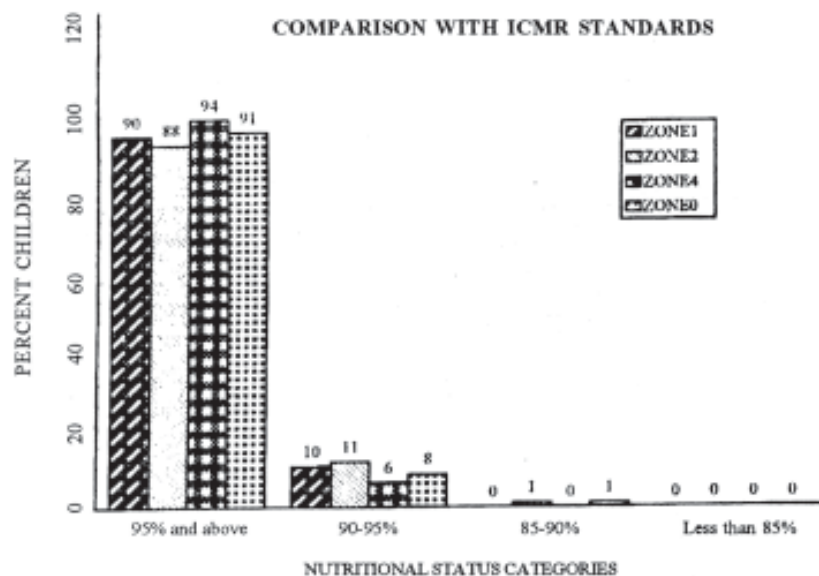
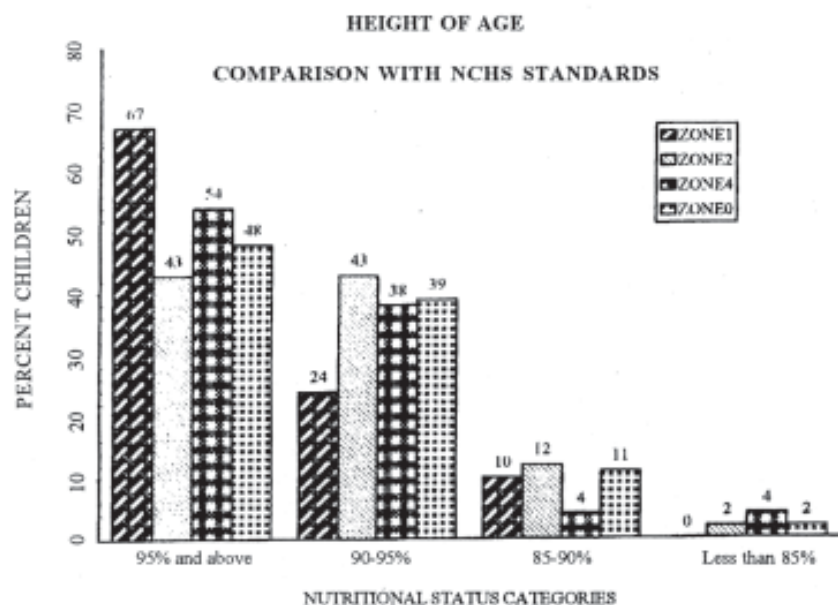
standards of health care to children to help them realize physical and mental potentials to the fullest.

The optimum growth and development of children can be planned if baseline data is available on current status of growth and development of children vis a vis the status of children from the developed world. Progress in health planning could be assessed from time to time if such information/studies are available. In a country like India, it is possible only if region specific reference data reflecting socio-ethno-cultural diversity are available. There is paucity of region specific standards for growth and development of rural children. The reference anthropometric standard specifically for rural children are also essential for the use of physicians, nutritionists and early childhood educationists, extension and social workers, researchers and planners.

It has been accepted all over the world, that nutritional status of the child has a direct bearing on his health status, both physical and mental which are interrelated. Thus, the present study attempts to focus on the nutritional status of Rural girls (6-8 years) from Punjab.

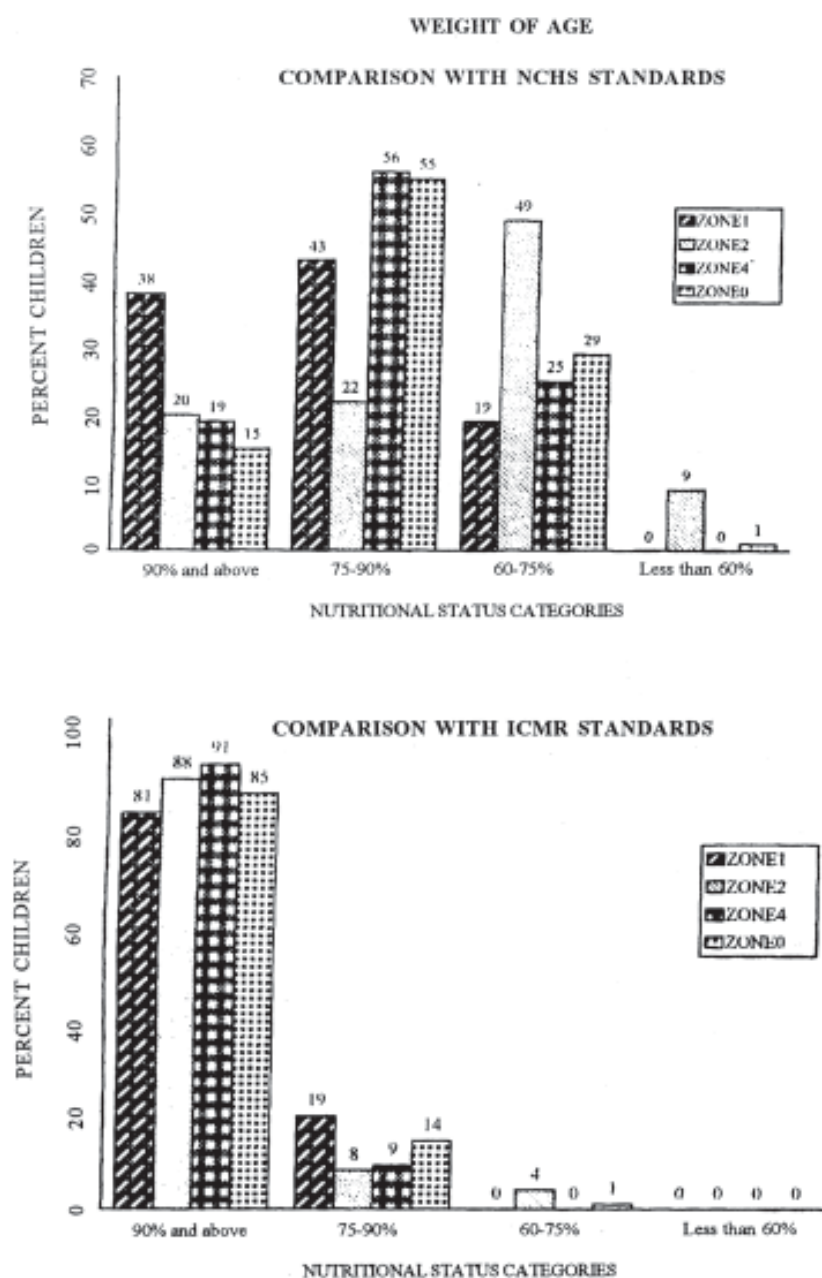
MATERIALS AND METHODS

A sample of 352 female subjects in the age range of 6-8 years were randomly selected from villages located in four agroclimatic zones (Zone 1 – Sub Mountain region; Zone 2 – Undulating plain region; Zone 4 – Western and Western plain region; Zone 0 – Central plain region) of Punjab. The number of villages selected was proportionate to the number of villages located in each agroclimatic zone. The sample was distributed into yearly age groups. More than 100 subjects of each sex form the sample size at each age level and comprised of proportionate number of subjects from each agroclimatic zone. They were measured for height and weight to assess their growth profile and nutritional status. The height was measured in centimeters with an anthropometer to the nearest 0.1 cm. The weight was mea-



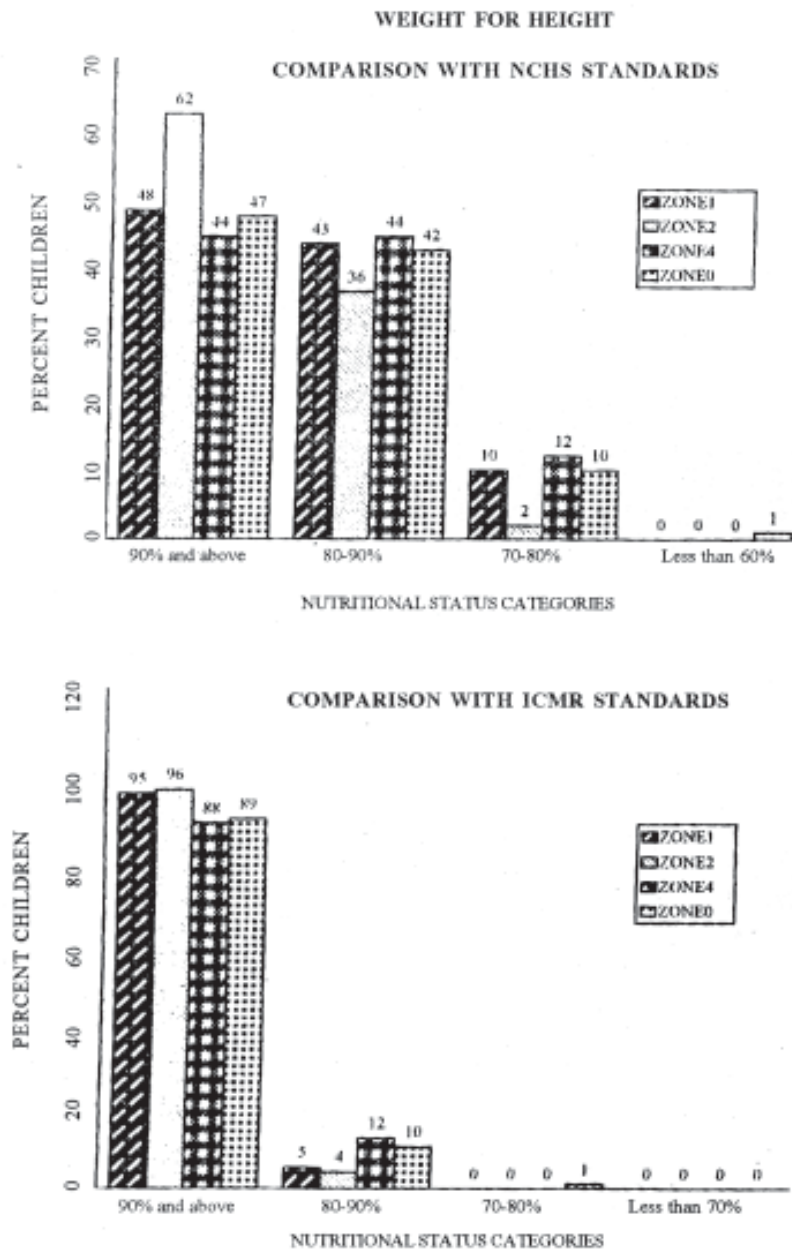
Zone 1: Sub Mountain undulating region (Pathankot, Gurdaspur, Hoshiarpur, Balachaur, Patiala & Ropar)
 Zone 2: Undulating plain region (Nawanshahar, Gurdaspur, Rajpura, Tanda, Machhiwara block of Ludhiana)
 Zone 3: Western & Western plain region (Amritsar, Faridkot, Bathinda, Sangrur, Ferozepur & Moga)
 Zone 4: Central plain region (Ludhiana, Nabha, Malerkotla, Kapurthala, Sirhind, Batala, Beas & Jalandhar)

Fig. 1. Anthropometric assessment of nutritional status of rural girls (6-8 years) from different agro climatic zones of Punjab



Zone 1: Sub Mountain undulating region (Pathankot, Gurdaspur, Hoshiarpur, Balachaur, Patiala & Ropar)
 Zone 2: Undulating plain region (Nawanshahar, Gurdaspur, Rajpura, Tanda, Maschiwara block of Ludhiana)
 Zone 3: Western & Western plain region (Amritsar, Faridkot, Bathinda, Sangrur, Ferozepur & Moga)
 Zone 4: Central plain region (Ludhiana, Nabha, Malerkotla, Kapurthala, Sirhind, Batala, Beas & Jalandhar)

Fig. 2. Anthropometric assessment of nutritional status of rural girls (6-8 years) from different agro climatic zones of Punjab



Zone 1: Sub Mountain undulating region (Pathankot, Gurdaspur, Hoshiarpur, Balachaur, Patiala & Ropar)
 Zone 2: Undulating plain region (Nawanshahar, Gurdaspur, Rajpura, Tanda, Machhiwara block of Ludhiana)
 Zone 3: Western & Western plain region (Amritsar, Faridkot, Bathinda, Sangrur, Ferozepur & Moga)
 Zone 4: Central plain region (Ludhiana, Nabha, Malerkotla, Kapurthala, Sirhind, Batala, Beas & Jalandhar)

Fig.3. Anthropometric assessment of nutritional status of rural girls (6-8 years) from different agro climatic zones of Punjab

sured in Kilograms to the nearest 0.05 kg. The family background information for each child was collected by interviewing their parents to assess their socio-economic status/level. As per socio-economic assessment scores, the sample subjects belong either to middle or low socio-economic status/level.

For statistical analysis, the yearly data was grouped and was statistically processed for mean, standard deviation, variance of both physical variables for each sex and agroclimatic zone, separately. Application of t-test of significance assessed significant interzonal differences in anthropometric parameters of nutritional status. Chi-square test was applied to project significance of interzonal differences in frequencies of various grades of nutritional status based on anthropometric assessments.

RESULTS

The anthropometric assessment of rural girls (Fig. 1) as per Waterlow's classification (Height for age) from different agroclimatic regions of Punjab depicted that in comparison with NCHS standards 43 percent to 67 percent of girls from all the zones to be nutritionally normal while 23 percent to 43 percent were observed to be mildly malnourished. Only 2 percent to 12 percent girls were either moderately or severely malnourished. On comparison with ICMR standards, majority (94% from Western plain region, 91% from Central plain region, 90% from Sub mountain region and 88% from Undulating plain region) of girls were found to be nutritionally normal. Only 1 percent from both Undulating plain region and Central plain region were found moderately malnourished and none of the girls was observed to be severely malnourished. Interzonal differences were found non-significant for both the standards.

Nutritional status of girls as per Gomez's classification (Weight for Age) was assessed (Fig. 2). In comparison with NCHS standards it was found that majority (56% from Western plain region, 55% from Central plain region and 43% from Sub mountain region) of girls were found mildly malnourished whereas majority (49%) of girls from Undulating plain region were found to be moderately malnourished. Girls from Undulating plain region (9%) and Central plain region (1%)

were found severely malnourished. As per ICMR standards majority (91% from Western plain region, 88% from Undulating plain region, 85% from Central plain region and 81% from Sub mountain region) were found to be nutritionally normal. 8 percent to 19 percent were found mildly malnourished whereas none of the girls was severely malnourished. Interzonal differences were found to be non-significant for both the standards.

The anthropometric assessment of nutritional status of rural girls (Fig. 3) as per Waterlow's classification (Weight for Height) from different agroclimatic zones of Punjab depicted that when compared with NCHS standards, 44 percent to 62 percent of the girls were found to be nutritionally normal whereas 36 percent to 44 percent were found in the category mild malnutrition. Two percent to 12 percent of the girls were found to be moderately malnourished, the percentage being highest for the girls from Western plain region and lowest for girls from Undulating plain region. None of the girl was found severely malnourished. When compared with ICMR standards 88 percent to 96 percent of girls were found to be nutritionally normal whereas only 4 percent to 12 percent were found mildly malnourished. None of the girls was found to be severely malnourished. Interzonal differences were found to be non-significant.

CONCLUSIONS

- Plan of action for rural children should include educating mothers and young girls on importance of nutrition to ensure proper mental and physical growth of children.
- When compared with International standards, it is obvious that majority of rural girls in Punjab was suffering from concurrent malnutrition whereas, 50% of the sample was suffering from short term malnutrition.

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