Research paper   ,

A surveyon the nutritional status of children in Bishnupur District, Manipur
(Special reference to 4 to 19 years old children)

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Abstract: Present study was carried out to study the nutritional status of children 4 to 19 yrs old from Bishnupur District, Manipur, byrandomly selecting250 boys and 270 girls.Nutritional status was assessed by adopting anthropometric indices (weight for age, height for age and BMI for age). It found that the prevalence of a moderate form of stunting was higher in girls than boys and girls had a lower prevalence of a severe form of stunting than boys. The prevalence of a severe form of underweight is lower in girls than boys and the prevalence of moderate underweight is higher in girls than in boys. The prevalence of moderate forms of wasting was higher in girls and the prevalence of severe wasting was higher in boys.

Keywords: Body Mass Index (BMI), Nutritional status, Anthropometric measurement, stunning, wasting.

Introduction

The status of health of a person influenced by the intake and utilization of nutrients is known as nutritional status. A normal nutritional status is when our body gets all the required nutrients in the diet. If the nutrients are inadequate or not utilized properly, it leads to malnutrition. There are two types of malnutrition.One is undernutrition, which means lack of one or more nutrients; another is over-nutrition,which means excess intake of nutrients. Food is essential for the human being to grow and according to the needs of our body's nutrients, it absorbs the nutrients from the digested food. This means that good nutrients are needed for good health.

According to Brown, 1984, a physical expression of the relationship between, the bio-availability of nutrients, nutrient intake and the physiological requirements of an individual is called nutritional status. There are different methods to measure the relationship between nutrient intake and the physiological needs of a person. One method is anthropometry measurement which is generally used for measuring nutritional status. We referred to WHO,

1963; Jelliffe, 1966 and Frisancho, 1990, Anthropometric measurements ofheight, weight,weight-for-age, height-for-age, weight-for-height, body mass index, indices of upper arm circumference, mid-upper arm circumference, skin fold thickness, etc. With reliable growth references, we can assess the growth status of children by comparing the attained height or weight for a given age.

During the age group 4-19year period, extra nutrients and energy-rich food are required to gain up to 50% of their adulthood and 90% of the adult skeletal mass is accrued at 19 years old. During this age group, more than 20% total growth in stature and up to 45% of adult bone mass is achieved and weight gained during the period contributes about 50% to adult weight. Iron and Vitamin A has also been suggested as essential for skeletal growth and necessary for growth, development, and maturation, respectively. The coexistence of Overweight or Obesity and Underweight is found to be increased proportionally over time in developing countries. According to WHO, the ultimate intention of nutritional assessment is to improve human health conditions. The recent Comprehensive National Nutrition Survey (India), 2016-18 among children from birth to19 years showed that the adverse nutritional status ofchildren is restricted to the prevalence of undernutrition and over-nutrition as India ispassing through a double burden of malnutrition.

Several studies have investigated different age groups' nutritional status inotherparts of India.In Assam, undernutrition (53.9%) is found among school children, in; Meghalaya the Khasi boys aged 3-18 years have underweight at 60% and a high prevalence of underweight (30.21%) and overweight (5.18%) was found among children and adolescent boys respectively.And among girls, the prevalence of underweight(33.86%) and overweight(5.18%) was higher among children than adolescents in Imphal West district, Manipur. Study on Nutritional status plays an essential role in public health implication for developing health promotion strategies to prevent chronic diseases. Hence the present statistical analysisdeservedly to study the Nutritional Status of Children of 4 to 19 years of Imphal East District, Manipur.

Methodology

For the present study, 250 boys and 270 girls were selected randomly, aged between 5 to 19 years, from Bishnupur district, Manipur. We referred to standard measurement techniques by Weiner and Lourie (1981) and Hoston (1946). We adopted three anthropometric indices (i) weight for age (ii) height for age and (iii) body mass index for age to assess the nutritional

status of children. Again we referred to Kuczmarski et, 2000 for the calculation of the z score and Visweswara Rao (1996) to follow the cut-off points to categorize into three levels of nutritional status, i.e., Normal, Moderate and Severe.

Data analysis and interpretation

Table 1: Data based on Height-for-age

Sex	Normal	Moderate	Severe
Boys	48.24%	44.36%	7.40%
Girl	45.76%	48.64%	5.6%

Table 2: Data of age and sex based on Height-for-age

Age (year)		Normal -2 to +2 of z-scores	Moderate -2 to -3 of Z-score	Severe Below -3 of Z-scores
4-9	Boys	59.55%	33.54%	6.91%
	girls	63.47%	30.54%	5.99%
10-9	Boys	37.73%	53.71%	8.56%
	girls	32.37%	60.65%	6.98%

From Table no 1, it is clearthat the prevalence of a moderate form of stunting was higher in girls than boysand girls had a lower prevalence of a severe form of stunting than boys. In the age group 4-9 years, it is found that the prevalence of severe form of stunting is lower in girls than in boys and the prevalence of a moderate form of stunting is higher in boys than in girls. Again in the age group 10-19 years, the prevalence of severe form of stunting is lower in girls than in boys and the prevalence of moderate stunting is higher in girls than in boys.

Table 3:Data based on weight-for-age

Sex	Normal -2 to +2 of z-scores	Moderate -2 to -3 of Z-score	Severe Below -3 of Z-scores
Boys	57.84%	32.96%	9.2%
Girl	61.06%	35.91%	3.03%

Table no. 4: Data of age and sex based on weight-for-age

Age year		Normal -2 to +2 of z-scores	Moderate -2 to -3 of Z-score	Severe Below -3 of Z-scores
4-9	Boys	55.92%	38.98%	5.1%
	girls	57.93%	40.54%	1.53%

10-9	Boys	62.9%	35.07%	2.03%
	girls	61.25%	36.78%	1.97%

It is clear from the above tables that the prevalence of a severe form of underweight is lower in girls than boys and the prevalence of moderate underweight is higher in girls than in boys.In the age group 4-9 years, it is found that the prevalence of severe is lower in girls than in boys and the prevalence of moderate underweight is higher in girls than in boys. Again in the age group 10-19 years, the prevalence of severe underweight is lower in girls than in boys and theprevalence of moderate underweight is higher in girls than in boys.

Table 5: Data based on BMI-for-age

Sex	Normal -2 to +2 of z-scores	Moderate -2 to -3 of Z-score	Severe Below -3 of Z-scores
Boys	88.14%	6.94%	4.92%
Girl	88.46%	11.01%	0.53%

Table 6: Data of age and sex based on BMI-for-age

Age (year)		Normal	Moderate	Severe
4-9	boys	85.09%	7.98%	6.93%
	girls	88.56%	10.91%	0.53%
10-19	Boys	89.11%	7.91%	2.98%
	girls	88.32%	10.01%	1.67%

It was found that moderate forms of wasting were higher in girls and severe wasting was higher in boys. In the age group 4-9 years, it is found that severe wasting is lower in girls than in boys and moderate wasting is higher in girls than in boys. Again in the age group 10-19 years, the prevalence of moderatewasting is higher in girls than in boys.

Conclusion

From the study, it may conclude that 40.5%, 51.72% and 12.23% of the children are underweight, stunted and wasted, respectively. According to the classificatory criteria proposed by Gorstein et al., it may conclude that the children in the study area wereahigh prevalence of underweight and stunting with a high prevalence of wasting.

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