ORIGINAL RESEARCH

Analysis of Nutritional Status of Preschool Children in a Known Area

Dr. Ranjana Dwivedi

Assistant Professor, Department of Community Medicine, Vedantaa Institute of Medical Sciences, Vedantaa Hospital and Research Center, Dahanu, Palghar, Maharashtra, India

Corresponding author
Dr. Ranjana Dwivedi
Assistant Professor, Department of Community Medicine, Vedantaa Institute of Medical Sciences, Vedantaa Hospital and Research Center, Dahanu, Palghar, Maharashtra, India

Received: 13 January, 2022 Accepted: 17 February, 2022

ABSTRACT

Background: Undernutrition is a major public health problem. The present study was conducted to assess the nutritional status of preschool children in a known area. **Materials & Methods:** The present community based observational cross-sectional study was conducted among Pre-school children between 1-5 years age group over a period of 6 months. 500 children were selected for the study. The information and anthropometric measurements were recorded. Collected data was compiled on Microsoft Office Excel Worksheet 2010 and $p<0.05$ considered as statistically significant. **Results:** Out of 8000, 500 children were selected for the study. Hence the prevalence of malnutrition was 6.25%. A total of 500 children between 1-5 years were included in study. Out of these 57% were boys and 43% were girls. Most of the children were in age group of 1-2 years (32.8%) followed by 2-3 years (26%). Out of 500 children studied, 184 (36.8%) were underweight, 176 (35.2%) were stunted and 140 (28%) were having wasting. Boys were more under weight(38.94%) than girls. girls were more stunt (37.67%) and more wasted (28.37% than boys**. Conclusion:** The study concluded that the prevalence of malnutrition was 6.25%. Maximum children were underweight followed by stunted and wasting. Boys were more underweight and girls were more stunted and more wasted than boys.

Keywords: Malnutrition, Underweight, Stunted, Wasting

INTRODUCTION

The World Health Organization (WHO) published the Child Growth Standard forinfants and children up to the age of 5 yr based on a multi-country study (Brazil, Ghana, India, Norway, Oman and USA) on growth of healthy breast-fed children under optimal conditions in April 2006.[1-4] Different diseases of adults are considered to have a close relationship with malnutrition and incorrect or improper nutrition in childhood. The association between childhood diet and being underweight or overweight as children or even as adults has been shown in numerous studies.[5-7] The nutrition of preschool children is of considerable importance not only because of concern over their nutrition in formative stage of life but is also widely perceived to have a substantial and persistent impact on their physical and mental development and on their health status and productivity as adults.[8] Although the term "malnutrition" refers to both under- and overnutrition, it is undernutrition which has dominated discussions on malnutrition in India. Numerous studies have documented a high incidence of undernourished children in India against international benchmarks. In fact, India has the highest percentage of undernourished children of all countries in the world. Preschool children, in particular, call for focused attention because this age group not only has special needs, but also forms the platform for growth and development of all children. Undernutrition among preschool children is the result of a complex interplay of diverse elements, such as birthweight, household access to food, availability and use of drinking water, sanitation, child and maternal care, etc.[9] The present study was conducted to assess the nutritional status of preschool children in a known area.

MATERIALS & METHODS

The present community based observational cross-sectional study was conducted among Pre-school children between 1-5 years age group over a period of 6 months.Informed consent was obtained from the mother/father/guardian participated in the study.8000 children were included in the study, out of 500 malnourished children were selected for the study. Datawascollectedwithpre-testedandpredesigned

questionnaire by house-to-house visit until sample size was attained. Socio-demographic parameters and anthropometry which included height or length and weight of the children were recorded. Anthropometric measurements such as height and weight were recorded to the nearest 0.5kg and 0.1cm respectively by standard methods. Where children could not stand on the weighing scale, the weight of the child was measured by subtracting the mother's weight; from motheralongwithbabyweighttakenbythedigital weighingscale.For the children who could stand, the weight was measured directly. Care was taken thatthe child didn't move or lean forward and took any support during the measurement. Weight was recorded in kilograms. Similarly, the length of children was measured by an infant to meter and height by the stadio meter and height chart. While measuring the length of the child by in fant ometer, care was taken for the head to be stabilized to the stagnant part and legs held at the level of knees by the mother, while the measurement was recorded by the moving part. Height was taken by making the child stand in front of the height chart/stadiometer, heels together with buttocks, shoulders and occiput touching the wall (in case of height chart). The information and anthropometric measurements were recorded in the presence of parents (mother/father) and guardian. The compiled data were analyzed to find out the prevalence of nutritional indicators:Weight-for-age(under-weight),Weight-for-height(wasting)andHeight-for-age(stunting).

Collected data was compiled on Microsoft Office Excel Worksheet 2010 and analyzed using frequency, mean, standard deviation, simple proportion and percentages. Chi-square test was used for comparison and $p<0.05$ considered as statistically significant.

RESULTS

Out of 8000, 500 children were selected for the study. Hence the prevalence of malnutrition was 6.25%. A total of 500 children between 1-5 years were included in study. Out of these 57% were boys and 43% were girls. Most of the children were in age group of 1-2 years (32.8%) followed by 2-3 years (26%).

Out of 500 children studied, 184 (36.8%) were underweight, 176 (35.2%) were stunted and 140 (28%) were having wasting. Boys were more under weight (38.94%) than girls. girls were more stunt (37.67%) and more wasted (28.37% than boys**.**

Table 1: Sociodemographic data

Variable	N(%)
Boys	285(57%)
Girls	215(43%)
Age group (years)	
1-2	164(32.8%)
2-3	130(26%)
3-4	95(19%)
4-5	111(22.2%)

Table 2: Distribution of underweight, stunting and wasting according to gender.

	Boys N=285	Girls N=215	p-value
Underweight	111(38.94%)	73(33.95%)	0.00001
Stunting	95(33.33%)	81(37.67%)	
Wasting	79(27.71%)	61(28.37%)	

DISCUSSION

WHO growth standards (2006) state that BMI for age can be used for detection of under- and overnutrition in preschool children. However, BMI for age has not been widely used as a method for detection of undernutrition in developing countries perhaps because there had not been many studies demonstrating the association between low BMI and functional decompensation such as increased risk of morbidity due to infections. Recently it has been reported that wasting at six months was a good predictor of infant mortality in India.[10]

Out of 8000, 500 children were selected for the study. Hence the prevalence of malnutrition was 6.25%. A total of 500 children between 1-5 years were included in study. Out of these 57% were boys and 43% were girls. Most of the children were in age group of 1-2 years (32.8%) followed by 2-3 years (26%). Out of 500 children studied, 184 (36.8%) were underweight, 176 (35.2%) were stunted and 140 (28%) were having wasting. Boys were more underweight (38.94%) than girls. girls were more stunted (37.67%) and more wasted (28.37% than boys**.**

Ramachandran P et al compared the pattern of growth of Indian children as assessed by weight for age, height for age and BMI for age with the WHO standards for growth (2006) and to explore the implications of differences in undernutrition rates in the 0-59 months of age group as assessed by these three indices. During the first three months there was no increase in underweight and stunting rates. There was progressive increase in underweight and stunting rates between 3-23 months of age. Low BMI for age and wasting rates were highest at birth.[11]

High prevalence of stunting (89.6%) and underweight (73.2%) were reported in a study among under-five children in Uttar Pradesh, India.[12]

Sen P compared the growth and nutritional status of Indian preschool children for the periods 1998/99 and 2005/06. The distributions of weight and length/height around the mean remained remarkably stable over age but were much greater in India than the international norms. The rates of growth of mean weight and length/ height were far lower in India than the international norms up to the age of 2 years. The temporal trend indicates declines in the percentages of undernourished (low weight-for-age) and stunted (low height-for-age) children over the 7-year period, although the degree of improvement was far better for stunting than for underweight. Mother's educational status is the only variable that has been found to influence child nutrition.[9]

CONCLUSION

The study concluded that the prevalence of malnutrition was 6.25%. Maximum children were underweight followed by stunted and wasting. Boys were more underweight and girls were more stunted and more wasted than boys.

REFERENCES

1. de Onis M, Blössner M. The World Health Organization Global Database on Child Growth and Malnutrition: methodology and applications. Int J Epidemiol 2003; 32: 518-26.
2. Garza C, de Onis M. Rationale for developing a new international growth reference. Food Nutr Bull 2004; 25 (Suppl 1): S5-14.
3. de Onis M, Onyango AW, Borghi E, Garza C, Yang H, for the WHO Multicentre Growth Reference Study Group. Comparison of the World Health Organization (WHO) Child Growth Standards and the National Center for Health Statistics/WHO international growth reference: implications for child health programmes. Public Health Nutr 2006; 9: 942-7.
4. The WHO Child Growth Standards. Available from: http:// www.who.int/childgrowth/standards/en/, accessed on December 24, 2008.
5. Dennison BA, Rockwell HL, Bakeri SL. Excess fruit juice consumption by preschool-aged children is associated with short stature and obesity. Pediatr. 1997;99:15–22.
6. Gonzales-Suarez C, Grimmer-Somers K, Worleyl A. Is food intake associated with pre-adolescent obesity? An observational study in Metromanila, Philippines. Asian J Clin Nutr. 2009;1:107–19.
7. Nuruddin R, Lim LK, Hadden CW, Azam I. Comparison of estimates of under-nutrition for preschool rural Pakistani children based on the WHO standard and the National Center for Health Statistics (NCHS). Public Health Nutr. 2008;12:716–22.
8. Scrimshaw NS. A supplementation and control of vitamin A deficiency; Food and Nutrition Bulletin. Special issue on Vitamin A.2001; 22(3): 235 – 340.
9. Sen P, Bharati S, Som S, Pal M, Bharati P. Growth and nutritional status of preschool children in India: a study of two recent time periods. Food and nutrition bulletin. 2011 Jun;32(2):84-93.
10. Vesel L, Bahl R, Martines J, Penny M, Bhandari N, Kirkwood BR, WHO Immunization-linked Vitamin A Supplementation Study Group. Use of new World Health Organization child growth standards to assess how infant malnutrition relates to breastfeeding and mortality. Bull World Health Organ 2010; 88: 39-48.
11. Ramachandran P, Gopalan HS. Assessment of nutritional status in Indian preschool children using WHO 2006 Growth Standards. The Indian journal of medical research. 2011 Jul;134(1):47.
12. Awasthi S, Das R, Verma T, Vir S. Anemia, and undernutrition among preschool children in Uttar Pradesh. India Indian Pediatrics. 2003;40:985–90.