



VARYING CRITERIA CAN MAKE A DIFFERENCE IN EXTENT OF UNDERNUTRITION IN 12-59 MONTH CHILDREN ATTENDING ANGANWADI CENTRE : FINDINGS FROM RURAL VARANASI.

Community Medicine

Prerna Srivastava* Resident, Department of Community Medicine, Institute of medical sciences, Banaras Hindu University, Varanasi, U.P.*correspondingAuthor

C.P Mishra Professor, Department of Community Medicine, Institute of medical sciences, Banaras Hindu University, Varanasi, U.P

ABSTRACT

Background: Malnutrition (WHO) is a pathological state arising from deficiency or excess of one or more nutrients over an extended period of time. Different criteria have different potential for examining extent of undernutrition in children, however scientific evidences in this regard are inadequate. **Objective :** To assess the nutritional status of 12-59 months anganwadi children using different criteria. **Material and methods :** This is community based crosssectional study carried out in anganwadi centre of Narayanpur village in rural area of Varanasi district. Children between 12 – 59 months were included. **Result:** Extent of undernutrition among anganwadi children was 38 % by WHO (weight for age) criteria where as 34.7 % by MUAC and 21.7 % by Rao and Singh criteria accordingly. **Conclusion:** Critical scrutiny of existing method of measuring undernutrition is desired for better dividends.

KEYWORDS

Malnutrition , Anganwadi Children , MUAC , Rao and Singh's criteria , WHO criteria

INTRODUCTION :

Nutrition in childhood is very important for adequate growth and development of children below five year. Childhood malnutrition is related to diseases viz. diarrhoea, acute respiratory illness and other illness which further aggravates malnutrition and form vicious cycle. Malnutrition (WHO) is a pathological state arising from deficiency or excess of one or more nutrients over an extended period of time. It can be undernutrition, overnutrition, specific deficiency disease and Nutritional imbalance. Malnutrition is one of the leading cause of under 5 mortality and morbidity in India.(1). The prevalence of underweight children in India is among the highest in the world and is nearly double of Sub-Saharan Africa. Children between 1 and 6 years of age in India constitute 15% of the total population. (2). Protein energy malnutrition is defined as any fall below 2 standard deviation from normal weight for age i.e. underweight height for age i.e. stunting and weight for height i.e. wasting. Wasting is an indicator of acute malnutrition and stunting is usually indicates chronic malnutrition. Malnutrition can be due to food scarcity and socioeconomic factors known as Primary malnutrition. During disease there is an increased demand of calorie, increased loss of calories and decreased intake of calorie, all of this three combination causes malnutrition called as secondary malnutrition(3). According to Fourth National Family Health Survey (NFHS 4) the percentage of under 5 mortality is 32, stunting (height for age) and underweight (weight for age) in children 0-59 month is 32.5 and 31.5 respectively. The percentage of wasting and sever wasting in 0-59 month children is 20.3 and 6.5 (4). In recent years there has been increase in quantity of food production and many intervention the problem of chronic malnutrition continues to exist (5). It is very essential to assess nutritional status of community for evolving existing policies and formulating programme and their implementation for effective control of nutritional deficiency disorders (6). Malnutrition can be identified before the appearance of clinical signs and symptoms using anthropometry measures to provide suitable solution for degree of malnutrition. There are many classification for grading the undernutrition by different cutoff points to decide who is normal and who is undernourished but different reference values and cutoff is creating difficulties in comparing data across various studies. And none of these classification address all three indices of undernutrition which is stunting wasting and underweight (7).

The children below five years are the most vulnerable to undernutrition and its adverse effects. Their nutritional requirement is relatively higher for body weight than older children and adults (8). Different criteria have different potential for examining extent of undernutrition in children, however scientific evidences in this regard are inadequate.

OBJECTIVE: of this study is to assess the nutritional status of 12-59 month old anganwadi children using different criteria.

METHODOLOGY:

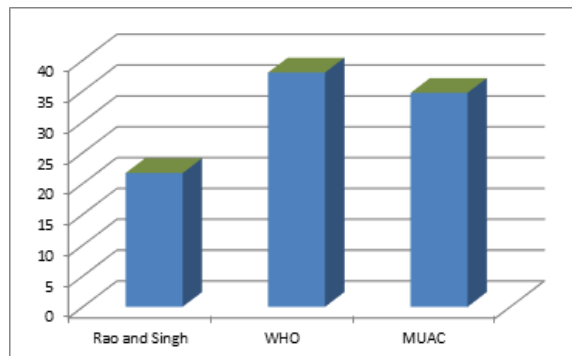
This is a cross sectional study carried out from July 2018 – September

2018, in Anganwadi centre of Narayanpur village of rural Varanasi which is field service area of Department of Community Medicine, Institute of Medical Sciences BHU Varanasi. In this study the study subjects were children of 12-59 month of both gender. The sample size was computed to be 92 by formula $Z2PQ/L2$. Sampling procedure: Out of 4 villages, 1 village was selected by simple random sampling. Narayanpur village has 7 anganwadi centres out of which 2 were selected by lottery method. Duration of study was 3 months. The aims and objectives of study was explained to the anganwadi worker. All children present at the day of visit were taken for study. The information about the age of children was calculated by date of birth information was taken from immunization card and anganwadi register. Age of children was calculated in month. Child who was born before middle of month were counted in previous month while those who were born at or beyond middle of month were counted in the next of month. The children of 12 – 59 months registered at anganwadi centre were included. Children less than 12 month and those who were absent on day of visit were not included for study. Tools and techniques: weight was taken by using calibrated weighing machine following standard techniques with minimum clothing and without any foot wear. Height of all subjects were taken by a steel anthropometric rod with head in anatomical position. Mid upper arm circumference using Shakir's tape. Head and chest circumference was done using non stretchable tape following standard techniques. Rao and Singh's index, Mid upper arm circumference and WHO criteria was used to assess the nutritional status of children.

Data was entered and analysis was done in SPSS version 23.

RESULT

The extent of undernutrition was found to be 38% by WHO criteria where as 34.7 % by MUAC and 21.7 % by Rao and Singh criteria. (Fig 1)



Out of 92 children of age group 12-59 month 38 male and 54 children were present. The number of undernourished male with MUAC, WHO, Rao and Singh criteria was found to be 13, 11 and 7. The percentage of undernourished male with MUAC criteria was 34.2%,

with WHO is 28.9 %and with Rao and Singh criteria is 18.4 % respectively.

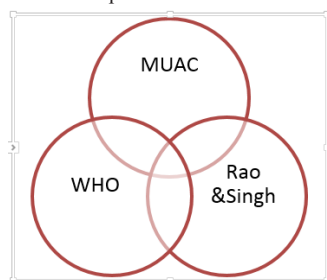
Table 1 : Gender distribution with different criteria of malnutrition .

Indicator	Male			female			Total	
	N	%	Undernutrition	N	%	Undernutrition	N	%
MUAC	25	41.7	13	40.6	35	48.3	19	59.3
WHO(w)	27	47.4	11	31.4	30	52.6	24	68.6
Rao and Singh	31	43.1	7	35	41	56.9	13	65
WHO(h)	8	32	30	44	17	68	37	55.2
							92	100

The extent of relative normalcy is shown in table below .Out of 92 children 33 children were found to be normal from all criteria while the other children are normal with one criteria are malnourished by other criteria so they are not adequately nourished but normal nutrition relative to particular criteria .With MUAC criteria the extent of relative normalcy is 60 , with WHO it is 56 and highest number of 72 with Rao and Singh criteria . The percentage of normalcy is reported 35.8% from all criteria, 65.2% by MUAC , 60.9 with WHO criteria and 78.2 % with Rao and Singh criteria respectively.

Indicator	N	%
All criteria	12	13.04
WHO (Stunted)	25	27.2
MUAC criteria	60	65.2
WHO (Underweight)	56	60.9
Rao & Singh criteria	72	78.2

Undernutrition levels with spectrum of criterias :



Number of children undernourished by any criteria is 59 about 64.13 %. Results shows overlapping of results of different criteria of malnutrition .

DISCUSSION :

The anthropometric measures for the classification of nutritional status are weight-for-age, height-for-age, optimal circumference (head and mid-upper arm circumference), etc. Of these, the most popular have been related to weight and height. Different researchers have employed either one or two of the indices, but rarely have all have been utilized. Mishra and Mishra[8] conducted study in Central Orissa shows malnutrition ranging 27 to 31 with mid upper arm circumference and 10 to 12 as per Gomez classification. The prevalence of malnutrition was 17%. In the study on detection of undernutrition among preschool children by Raje *et al.*,[9] 66.67% children were suffering from malnutrition and according to IAP and Rao index 42.59% and 41.67% children were malnourished . In present study extent of undernutrition was found to be 38% by WHO criteria where as 34.7 % by MUAC and 21.7% by Rao and Singh criteria.

CONCLUSION :

7 out of 20 children were normal according to All criteria .By adopting MUAC 13 out of 20 children were found to be normal .Around 6 out of 10 children were normal by WHO criteria where as nearly 8 out of 10 were found to be normal by Rao and Singh's criteria. Public policies in support of children are taking shapes across different social service sectors. The nationapolicy on children, the perspective plans for the women and the new education policy are significant steps towards the improvement of the situation of children in India. However the cutoff for different criteria shows different percent of malnutrition.

RECOMMENDATION :

There is alarming difference in the extent of undernourished by adopting multicentric criteria than individual one. Critical scrutiny of existing method of measuring undernutrition is desired for better dividends.

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