Assessment of Nutritional Status of Pre-School Children (3-5 yrs) Residing in the Catchment Area of Ram Nagar Urban Health Center, Belgaum.

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Abstract

Malnutrition is a silent emergency. The prevalence of malnourished children in India is 43% which is nearly 2 fold higher than that of Sub-Saharan Africa. Malnutrition results from imbalance between the body's needs and the intake of nutrients. Objective: To assess the nutritional status of pre-school children (3-5 yrs) residing in the catchment area of Ram Nagar Urban Health Center. This study was undertaken in the urban slum area of Ramnagar UHC. Using formula n= $4pq/d^2$ the calculated sample size was 275. The sample was selected by Simple Random Sampling. A pre-designed and pilot tested questionnaire was developed. Ethical clearance and informed consent was obtained. It was seen that nearly one third of the children were under weight, wasted and stunted. One third was also categorized as malnourished by MUAC criteria. The mean ±SD age of pre-school children was 47.63± 10.42 months, the mean ±SD weight of pre-school children was 12.98± 1.14 kg and the mean ±SD height of pre-school children was 98.49± 2.86 cm. There was an immediate need for nutritional intervention by the government sectors to improve the nutritional status of the children. The running of ICDS program must be evaluated to know its effectiveness and efficiency.

Keywords: Malnutrition, wasting, stunting, under weight, MUAC

Introduction

Malnutrition is a silent emergency which results from combination of factors and conditions. WHO estimated that the prevalence of under- five malnutrition was 16.2% worldwide. One of every three children less than five years of age is malnourished. India has the highest burden of malnutrition among under five children in the world. The prevalence of malnourished children in India 43% which is nearly 2 fold higher than that of Sub-Saharan Africa[1-3]

In young children malnutrition resulted by inadequate feeding; faulty feeding practices, several infections (like diarrheal disease, acute respiratory tract infection, worm infestation), insanitary condition unsafe water, indiscriminate excreta disposal and poor personal hygiene. Economically weaker section and illiterate families bear the major burden of malnutrition apart from poor physical growth and development. The consequences of malnutrition are high level of morbidity, mortality and disability.[4] Malnutrition results from imbalance between the body's needs and the intake of nutrients, which can lead to syndromes of deficiency, dependency, toxicity or obesity. [5]

Children are the wealth of the country. A nation is built by the bricks of today's children. Children are like clay in the potter's hand, if handled with love and care, they will become something beautiful. So the children health is the corner stone of a national progress.[6, 7] High prevalence of malnutrition among young children is also due to lack of awareness and knowledge regarding their food requirements and absence of a responsible care giver.[8] Hence, the present study was undertaken to find the nutritional status of pre-school children residing in the catchment's area of the Ramnagar Urban Health Centre.

Material and Methods

This was cross sectional study design conducted at Ramnagar urban slum area under Ramnagar Urban Health Center, Belgaum. Since, the prevalence of malnutrition among pre-school children (3-5 yrs) in India was 43%, the sample size has been tolerable error of 5% and 95% CI, using the formula, n= $4pq/d^2$ the calculated sample size was 392. The total pre-school children (3-5yrs) residing in the catchment area of Ram Nagar was 670. Using correcting sample size for finite population formula, n^1 = n/[1+(n/N)] the calculated size was 250. The attrition rate of 10% was taken and the final sample size was 275. Data was collected at the community setting during data collection days. Each of the parents of 3 to 5 year child was interviewed. The questionnaire had various nutrition related variables. The variables were breast feeding, weaning, immunization and anthropometric measurement.

The questionnaire was pilot tested in the same population and no major correction was done. Ethical clearance was obtained from the Institutional Ethics Committee of the JNMC, KLE University. The data was collected by interviewing the parents after obtaining the informed consent in written form and verbally. Anthropometric measurements like height, weight and MUAC was collected for every child by measuring tapes, and collaborated weighing machine through house to house visit. The data collection period was from March 2013 to December 2013.

Pre-school children (3-5 yrs) who were permanent residents of the study area and/or those who were staying in the area at least for one year were included in the study. Those who were not present at the time of their home visits were excluded from the study. . These data were entered into SPSS sheet and then analyzed by using SPSS software (SPSS 20.0 Version).

Results

Table I showed that out of 275 children aged 3-5 years, 134(48.7%) were male and 141(51.3%) were female children. With regards to age distribution it was observed that in 36-48 months age group, male children were 58(37.4%) and female children were 97(62.6%) and in 49-60 months age group, male children were 76(63.3%) and female children were 44(34.7%) respectively.

Table I: Distribution of pre-school children according to age and sex

Age (in months)	Male		Female		Total	
	No.	%	No.	%	No.	%
36-48	58	37.4	97	62.6	155	56.36
49-60	76	63.3	44	36.7	120	43.64
Total	**134**	**48.7**	**141**	**51.3**	**275**	**100**

Table II revealed that distribution of pre-school children according to WHO 2006 classification the prevalence rate of underweight (low weight for age), stunting (low height for age) and wasting (low weight for height) was 80(29.1%), 77 (28.0%) and 78 (28.4%) respectively. Prevalence rate of severe stunting was 4(1.5%). The mean ±SD age of pre-school children was 47.63± 10.42 months, the mean ±SD weight of pre-school children was 12.98± 1.14 kg and the mean ±SD height of pre-school children was 98.49± 2.86 cm.

Table II: Distribution of pre-school children according to WHO Classification.

Indices	Normal		Undernourished		Severely undernourished		Total	
	No.	%	No.	%	No.	%	No.	%
Weight for age	195	70.9	80	29.1	0	0	275	100
Height for age	194	70.5	77	28.0	4	1.5	275	100
Weight for Height	197	71.6	78	28.4	0	0	275	100

Table III showed that distribution of pre-school children according to Mid Upper Arm Circumference, the prevalence rate of mild malnutrition was 83 (30.20%) and severe malnutrition was 6 (2.20%).

Table III: Distribution of pre-school children according to Mid Upper Arm Circumference.

Mid Upper Arm Circumference (in cm)	Number	Percentage
<12.5	6	2.20
12.5-13.5	83	30.20
>13.5	186	67.6
Total	**275**	**100.00**

Discussion

In our study, among 275 children studied, 48.7% were male children and 51.3% were female children. Majority of the children were (43.6%) in the age group of 49-60 months. Our results were similar to a study conducted in rural areas of Karnataka in 2002[27].

In the present study the prevalence of underweight was found to be 29.1%. The prevalence of stunting and severe stunting was 28.0% and 1.5% respectively. The prevalence of wasting was 28.4%. According to NFHS 3 the total prevalence of underweight and severe underweight, stunting and severe stunting and wasting and severe wasting was 43.7% and 17.4%, 47.2% and 23.8% and 24.1% and 8.3%. In Karnataka, the prevalence of underweight, stunting and wasting was 43.9%, 36.6% and 20.0% respectively and these are comparable to the result in our study.[9] In our study, the (Mean ± SD) weight of the children was 12.98 ± 1.14 kg, the mean ±SD height of pre-school children was 98.49± 2.86 cm and the mean ±SD age of pre-school children was 47.63± 10.42 months In the study conducted near Jabalpur, the mean weight among male children in 37-48 months it was 11.2 ±1.72 kg, in 49-60 months it was 12.8 ±1.98 kg. The mean ±SD height of male children in 37-48 months it was 91.86 ± 5.69 cm and 98.51 ± 5.63 cm in 49-60 months.[10] Based on the mid upper arm circumference only 32.4% of the children in the 36-60 months age group were found to be malnourished. In a study conducted in a rural area in Faridabad district, malnutrition was detected in 27.2% of the children by using mid arm circumference. The sensitivity and specificity was found to be 34.1% and 80.8% and the authors concluded that this criterion detected moderately severe cases of malnutrition.[11]

Conclusion

In our study, number of female children was more than male children. The mean height and weight of the children were lesser than the WHO reference. Nearly one third of children were underweight, stunted and wasted. No child was found to be overweight or obese. MUAC detected only one third of children as malnourished.There was an immediate need for

nutritional intervention by the government sectors to improve the nutritional status of the children. The running of ICDS program must be evaluated to know its effectiveness and efficiency. Public private partnership is implemented in this area so there is hope of improvement in the future.

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