Journal of Cardiovascular Disease Research

ISSN: 0975-3583, 0976-2833 VOL14, ISSUE 07, 2023

Evaluation of nutritional status of under five children: Our experience from Andhra Pradesh

Dr. Santhosh Kumar Hiregowdra[1], Dr. Arpitha JS[2], Dr. Megha R[3], Dr. Anirudh Raghavendra J[4], Dr M. Pavan Kumar[5], Dr. Anant A. Takalkar[6]

[1]Assistant Professor, Department of Paediatrics VIMS, Ballari, Karnataka, India

[2]Senior Resident, Department of Paediatrics, VIMS Ballari, India

[3]Post graduate, Department Of OBGY, SSMC, Tumakuru, Karnataka, India

[4]Senior Resident, Department of Medicine, Basaveshwara medical college and Hospital, Chitradurga, Karnataka

[5]Undergraduate, SDM College, Dharwad, Karnataka, India

[6]Professor, Department of Community Medicine, MIMSR Medical College, Latur, Maharashtra

Corresponding author: Dr. Santhosh Kumar Hiregowdra (santhoshhiregowdra@gmail.com)

Abstract

Introduction: Malnutrition is a universal issue that no country in the world can afford to overlook. A third of reproductive-age women are anaemic, while 39% of the world's adults are overweight or obese and each year around 20 million babies are born underweight. The 2018 Global Nutrition Report reveals malnutrition is unacceptably high and affects every country in the world, but there is also an unprecedented opportunity to end it. 90% of the developing world's chronically undernourished (stunted) children living in Asia and Africa. **Objectives:** To study the prevalence of underweight, stunting, and wasting in under-five children attending to Rural Development Trust (RDT) hospital, Bathalapalli. **Methodology:** The present hospital based cross-sectional, descriptive-analytical study conducted at the Department of Paediatrics in Rural Development Trust Hospital, Bathalapalli, Andhra Pradesh from April 2018 to March 2019 involving 401 children aged between six months to 59 months. **Results:** Prevalence of stunting was 27.93%, wasting was 12.22% and underweight was 25.44%. 40.15% of the children had under nutrition. 60.10% of the children had <-2SD to median height for age. 69.08% of the children had <-2SD to median weight for age and 20.95% of the children had <-3SD weight for age. **Discussion:** Prevalence of stunting was 27.93%, wasting was 12.22% and underweight was 25.44%.

Introduction

Children represent the future, and ensuring their physical, socio-emotional language and cognitive development ought to be a priority for all societies. Children are particularly vulnerable to malnutrition and infectious diseases, many of which can be effectively prevented or treated.[1] Nutrition is a core pillar of human development and concrete, large-scale programming not only can reduce the burden of undernutrition and deprivation in countries but also can advance the progress of nations.[2]

Malnutrition is a universal issue that no country in the world can afford to overlook. A third of reproductive-age women are anaemic, while 39% of the world's adults are overweight or obese and each year around 20 million babies are born underweight. The 2018 Global Nutrition Report reveals malnutrition is unacceptably high and affects every country in the world, but there is also an unprecedented opportunity to end it.[3] 90% of the developing world's chronically undernourished (stunted) children living in Asia and Africa. Detrimental and often undetected severe, undernutrition undermines the survival, growth and development of children and women, and diminishes the strength and capacity of nations.

ISSN: 0975-3583, 0976-2833 VOL14, ISSUE 07, 2023

With persistently high levels of undernutrition in the developing world, vital opportunities to save millions of lives are being lost, and many more millions of children are not growing and developing to their full potential.[2]

Undernutrition is most prevalent in states of Madhya Pradesh, Bihar, and Jharkhand. It is minimal in Mizoram, Sikkim, Manipur, Kerala, Goa and Punjab. In Andhra Pradesh, according to NFHS 4 report, 31.9% of under-five age children are underweight, 31.4% of under-five age children are stunted and 17.2% are wasted.[4]

In India 20% of children under five years of age suffer from wasting due to acute undernutrition. More than one third of the world's children who are wasted live in India. 43% of Indian under five children are underweight and 48% (i.e. 61 million children) are stunted due to chronic undernutrition, India accounts for more than 3 out of every 10 stunted children in the world. Undernutrition is substantially higher in rural than in urban areas. Short birth intervals are associated with higher levels of undernutrition.[2] The percentage of children who are severely underweight is almost five times higher among children whose mothers have no education than among children whose mothers have 12 or more years of schooling. Undernutrition is more common for children of mothers who are undernourished themselves (i.e. body mass index below 18.5) than for children whose mothers are not undernourished. Children from scheduled tribes have the poorest nutritional status on almost every measure and the high prevalence of wasting in this group (28%) is of particular concern.[2]

Objectives

To study the prevalence of underweight, stunting, and wasting in under-five children attending to Rural Development Trust (RDT) hospital, Bathalapalli.

Materials and methods

This study was conducted in Rural Development Trust Hospital, Bathalapalli, Andhra Pradesh from April 2018 to March 2019.

Study design: The study design was a hospital based cross-sectional, descriptive-analytical study.

Study period and duration: This study was conducted from April 2018 to August 2019.

Place: The present study was conducted at the Department of Paediatrics, Rural Development Trust Hospital, Bathalapalli, Andhra Pradesh.

Study population: Children aged between six months to 59 months attending Department of paediatrics, Rural Development Trust Hospital, Bathalapalli, Andhra Pradesh were enrolled.

Sample size: A total of 401 children attending Department of paediatrics, Rural Development Trust Hospital, Bathalapalli, during the study period were enrolled.

Selection Criteria

Inclusion Criteria

- Children of either sex in the age group of six months to 59 months attending Department of Paediatrics.

ISSN: 0975-3583, 0976-2833 VOL14, ISSUE 07, 2023

Exclusion criteria

- Children with obvious congenital malformations.
- Children with spinal deformities.
- Children with chronic diseases.

Ethical clearance: Prior to the commencement, the study was approved by the Ethical and Research Committee, Rural Development Trust Hospital, Bathalapalli, Andhra Pradesh.

Informed Consent: All the parents/caregivers of the children fulfilling inclusion criteria were explained about the nature of the study and a written informed consent was obtained before enrolment.

Method of collection of data

The parents of the children who fulfilled the inclusion criteria and willing to participate in the study were interviewed and the demographic data including age, sex and age socio economic status were obtained. The education, occupation of parents and socioeconomic status of the family was assessed according to modified kuppuswamy classification. Information regarding antenatal visits, mode of delivery, birth weight, birth interval, feeding practices also obtained. Immunization status was confirmed by vaccination card. History of morbidities if any, such as recurrent fever, diarrhea, ARIs, etc. were also obtained. Further, these children were subjected to anthropometric measurements (weight, height, mid upper arm circumference and head circumference) were taken from all the 6 months-to 5-year-old children using standard equipment and procedures. Nutritional assessment was carried out by using WHO (2006) child growth standards according to SD classification.

Height/Length*:* The subject stood straight without footwear, with heels, buttocks and back touching the wall and arms hanging by side. The height was measured from head to heal.

Weight: Body weight was measured without any foot wear and with minimal clothing to the nearest 0.1 kilogram using a standard portable weighing machine, which was standardized periodically during the study. The scale was adjusted to zero before each session and weight was recorded in kilogram.

Results

The present hospital based cross-sectional, descriptive-analytical study was conducted in Rural Development Trust Hospital, Bathalapalli, Andhra Pradesh from April 2018 to March 2019. A total of 401 children attending Department of Paediatrics, Rural Development Trust Hospital, Bathalapalli, during the study period were studied for nutritional status.

Table 1. Distribution of the children according to the nutritional status

Nutritional status	Distribution (n=401)	
	Number	Percentage
Stunted	112	27.93
Underweight	102	25.44
Wasted	49	12.22
Normal	240	59.85

ISSN: 0975-3583, 0976-2833 VOL14, ISSUE 07, 2023

In the present study 59.85% of the children were normal while stunting was noted in 27.93% of the children, wasting was noted in 12.22% of the children and 25.44% of the children were underweight.

Table 2. Distribution of the children according to the nutritional status

Nutritional status	Distribution (n=401)	
	Number	Percentage
Normal	240	59.85
Undernutrition	161	40.15
Total	**401**	**100.00**

In the present study 40.15% of the children had under nutrition.

Table 3. Distribution of the children according to the height for age

Findings	Distribution (n=401)	
	Number	Percentage
<-3SD	93	23.19
-3SD to -2SD	19	4.74
-2SD to median	241	60.10
Median to +2SD	40	9.98
+2SD to +3SD	2	0.50
> +3SD	6	1.50
Total	**401**	**100.00**

In the present study 60.10% of the children had <-2SD to median height for age.

Table 4. Distribution of the children according to the weight for age

Findings	Distribution (n=401)	
	Number	Percentage
<-3SD	84	20.95
-3SD to -2SD	18	4.49
-2SD to median	277	69.08
Median to +2SD	22	5.49
Total	**401**	**100.00**

In this study 69.08% of the children had <-2SD to median weight for age and 20.95% of the children had <-3SD weight for age.

Table 5. Distribution of the children according to the weight / height

Findings	Distribution (n=401)	
	Number	Percentage
<-3SD	35	8.73
-3SD to -2SD	14	3.49
-2SD to -1SD	115	28.68
-1SD to median	96	23.94
Median to +1SD	132	32.92
+1SD to +2SD	7	1.75
+2SD to +3SD	4	1.00
Total	**401**	**100.00**

In the present study 32.92% of the children had Median to +1SD weight/height.

ISSN: 0975-3583, 0976-2833 VOL14, ISSUE 07, 2023

Discussion

Nutrition is essential for human development and the focal point of health and well-being. Pre-school children are one of the most nutritionally vulnerable segments of the population. Nutrition during the first five years has an impact not only on growth and morbidity during childhood, but also acts as a determinant of nutritional status in adolescent and adult life. Malnutrition is the underlying cause of at least 50% of deaths of children under five.[5]

Prevalence of under-nutrition among under five children is high and varies widely depending on the assessment methodology adopted. Furthermore, there are limited studies on assessment of nutrition and the risk factors associated with malnutrition among these children. Strengthening public health interventions for mild malnutrition cases among the vulnerable groups with a focus on socioeconomic development and are the prerequisites required to tackle malnutrition among under-five children in India. With this context, the present study was undertaken to evaluate the nutritional status of under five children and to find the determinants of malnutrion so as to provide an opportunity to prevent undernutrition.

This one year hospital based cross-sectional, descriptive-analytical study was done from April 2018 to March 2019. A total of 401 children attending Department of paediatrics, Rural Development Trust Hospital, Bathalapalli, during the study period were studied for nutritional status.

In the present study undernutrition was determined based on the stunting, wasting and underweight as defined by WHO classification[6] (2006) for the assessment of malnutrition. The mean height was 78.86±16.06 cms and mean weight was 9.13±2.84 Kgs. Further, 59.85% of the children were normal while maximum children had stunting (27.93%), followed by the composite index of stunting and wasting, that is, underweight (25.44%) and wasting (12.22%) many of the children had multiple conditions. Based on above observations, more than one third of the children (40.15%) had under nutrition suggesting that every four out of ten under five children are affected with malnutrition in the study area. Sahu SK et al.[7] (2009) reported that under-weight among under-five children ranged from 39% to 75%, stunting from 15.4% to 74% and wasting from 10.6% to 42.3% in different parts of the country. The prevalence of underweight and wasting noted in the present study was lower than those reported by Sahu SK et al.[7] (2009). Also, the frequency of stunting and underweight noted in the present study are well below the national average of rural India (38.3% and 41.2%) as well as state average of rural populace of Andhra Pradesh (33.1% and 32.5%).[4] In contrast to the observations from the present study, a recent study by Reddy et al[8] (2018) among under-five children in Mittapalem village of Chittor district, Andhra Pradesh which very close to the study area reported the prevalence of underweight and stunting in under-five as 31.3% and 27.6%, which was high compared to the present study. However, Challa S. and Challa P.[9] (2015) reported that, the state of Telangana has the highest burden of wasting and severe wasting among any of the southern states of the country. This is followed by Tamil Nadu, Karnataka, Kerala, and Andhra Pradesh So, the residual state of Andhra Pradesh after the bifurcation has the lowest prevalence of wasting among any of the states of south India. The observations from the present study are strongly in agreement with the observations reported by Challa S. and Challa P.[9] (2015).

Conclusion: Based on the results of this study it may be concluded that, more than one third of the children that is every four out of ten under five children are affected with malnutrition in the study area. Further, stunting is more prevalent than underweight and wasting.

ISSN: 0975-3583, 0976-2833 VOL14, ISSUE 07, 2023

Conflicts of interest: Nil

Source of funding: Self funded

References

1. World Health Organization. Child development. Available from: URL: https://www.who.int/topics/child_development/en/ Access Date 05.06.2019.
2. Nutrition. Available from: URL: http://unicef.in/story/1124/Nutrition Access Date 05.06.2019.
3. UNICEF. 2018 Global Nutrition Report reveals malnutrition is unacceptably high and affects every country in the world, but there is also an unprecedented opportunity to end it. Available from: URL: https://www.unicef.org/press-releases/2018-global-nutrition-report-reveals-malnutrition-unacceptably-high-and-affects Access Date 05.06.2019.
4. International institute for population sciences (IIPS) and ICF. 2017. National Family Health Survey (NFHS-4), 2015-16: India. Mumbai: IIPS.
5. Prashanth MR, Savitha MR, Prashantha B. Risk factors for severe acute malnutrition in under-five children attending nutritional rehabilitation centre of tertiary teaching hospital in Karnataka: a case control study. Int J Contemp Pediatr 2017;4:1721-6.
6. WHO Multicentre Growth Reference Study Group. Assessment of differences in linear growth among populations in the WHO multicentre growth reference study. Acta Paediatr Suppl 2006;450:56-65.
7. Sahu SK, Kumar S G, Bhat B V, Premarajan K C, Sarkar S, Roy G, Joseph N. Malnutrition among under-five children in India and strategies for control. J Nat Sc Biol Med 2015;6:18-23.
8. Reddy Kapu AK, Upadrasta VP, Ponna SN, Bharathi S, Bathina H, Bathina H, et al. Prevalence of Malnutrition in Under-Five Children of a Rural Area in Rayalaseema Region. Nat J Res Community Med 2018; 7(4):285-9.
9. Challa S, Challa P. Nutritional status of under-5 children in the newly carved states of India. International Journal of Medical Science and Public Health 2015;4(7):1019-22.