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Original Research Article

Prevalence of Malnutrition among Under Five Children of Rukmini Nagar, Belagavi - A Cross Sectional Study

Sawan Kumar Yadav[1], Mubashir Angolkar[2], Kiran Chaudhary[1], Durganand Jha[1]

[1]BPH, MPH, Department of Public Health, J.N. Medical College, KLE University, India.
[2]Associate Professor and Head, Department of Public Health, J. N. Medical College, KLE University, India.

Corresponding Author: Sawan Kumar Yadav

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ABSTRACT

Background: The children of today are the future of tomorrow; this powerful statement assumes special significance. Malnutrition is widely recognized as a major health problem in developing countries. It is widely spread and it is a significant public health problem described as silent killer, silent emergency and invisible enemy. Growing children are most vulnerable to its consequences. Pediatric malnutrition is a risk factor for 16% of the global burden of disease and for 22.4% of India's burden of diseases. About 50% of all childhood deaths are attributed to Malnutrition directly.
Objectives: To find the prevalence of malnutrition among under five children of Rukmini Nagar.
Material and Method: A community based cross sectional study was conducted among 385 under-five children selected randomly at the field practice area of Rukmini Nagar Urban Health Centre. Pre-designed, pre-tested, structured questionnaire was used to collect the data. Anthropometric measurements were done by measuring tapes, shaker's tapes and calibrated weighing machine. SPSS software version 20 was used to analyse the data.
Result: Out of 385 children, 196(51%) were males and 189(49%) were females. Prevalence of malnutrition was found to be 51%. Among which stunting, wasting and underweight was found to be 100(26.0%), 86(22.3%) & 123(32.0%). while moderate & severe degree of stunting, moderate & severe wasting and moderate and severe degree of underweight was 47(12.2%) & 53(13.8%), 46(11.9%) & 40(10.4%) and 65(16.9%) & 58(15.1%) respectively.
Conclusion: More than half of under five children were suffered from malnutrition. Underweight was more than compare to stunting and wasting in the children, which reflects both acute and chronic under nutrition.

Key Words: Prevalence, Malnutrition, Underfive, Urban, Rukmini Nagar.

INRODUCTION

The young child under 5 years is most vulnerable to the vicious cycles of malnutrition, infection and disability all of which influence the present condition of a child and the future human resource development of the nation as a whole. Hence the assessment of the ground reality as reflected by the statistics on nutritional status of children becomes very significant in this context. [1]

According to the World Health Organisation (WHO) globally, 30% of children under five are estimated to be stunted and 18% have low weight-for-height, and 43 million children are overweight. Nearly 9 million children die every year from preventable diseases and infections: the largest killer being Diarrhoeal disease. There are over 2 billion cases of diarrhoeal disease every year and is the leading cause of malnutrition amongst children under five. [2] National family Health survey 3 (NFHS), 43% of children aged less than 5 years are underweight, 48% are stunted and 6% are severely wasted. An estimated 40% of the world's severely malnourished under-5 children live in India. The prevalence of underweight children in India is among the highest in the world, and is nearly double that of Sub-Saharan Africa with direct consequences for mobility, mortality, productivity and economic growth. [3] One in every three malnourished child in the world lives in India. [4] In Karnataka 44%, 18% and 38% children under age five are stunted (too short for their age), wasted (too thin for their height) and 38% are underweight. [5] Nutrition is an input to and foundation for health and development. Pediatric malnutrition is a risk factor for 16% of the global burden of disease and for 22.4% of India's burden of diseases. About 50% of all childhood deaths are attributed to Malnutrition directly. Malnutrition is widely recognized as a major health problem in developing countries, which is wide spread in rural, tribal and urban slum areas and it is a significant public health problem described as silent killer, silent emergency, invisible enemy affecting those who cannot express their voice and have to depend upon others for their advocacy. Growing children are most vulnerable to its consequences. Their nutritional status is a sensitive indicator of community health and nutrition. [6]

So, keeping this in mind present study was undertaken to find the prevalence of malnutrition among under five children.

MATERIALS AND METHODS

Study design: Community based analytical cross sectional study.

Study area: Field practice area of the Rukmini Nagar Urban Health Centre, Belagavi. Karnataka, India.

Study period: Feb 2013 to October 2014.

Sample size: Sample size calculation, was done by using the statistical formula,

$n= Z\alpha^2pq/d^2$,

Where,

p= prevalence of malnutrition =46%, [7]

n = sample size

p = 46, q = (100-p) = 65%

d = Absolute error= 5%

CI= confidence level= 95%

z = 1.96(constant)

$n = (1.96^2 \times 46 \times 54) / 5^2$

n = 381.2 ≈385

n = 385

So, the total 385 under five children was calculated as sample size for the purpose of this study.

Sampling technique: A Sampling frame was prepared from under-five children in study area at first. Simple random sampling technique was used to select the children.

Inclusion criteria: Children whose age does not exceed five years and those children whose parents give the informed consent.

Exclusion criteria: Children who were ill at the time of the study.

Ethical clearance: Obtained from Institutional Ethics Committee on Human Subjects research, J. N. Medical College, Belagavi and informed consent was taken from all the participants before Data collection and also from the Medical Officer of the Rukmini Nagar UHC.

Definition of the variables:

1. Stunted: - low height according to the age. (Z score=-3SD to -2 SD)
2. Wasted: - low weight according to height. (Z score=-3SD to -2 SD)
3. Underweight:-low weight according to age. (Z score=-3SD to -2 SD)

Method of data collection: Socio demographic information was collected by using the pretested and predesigned structured proforma by interview technique. Anthropometric measurement (height, weight, & MUAC) was done using calibrated standard technique. Socio economic classification of the family was classified using modified B.G. Prasad's classification. Prevalence of malnutrition (stunting, wasting & underweight) was done based on World Health Organisation (WHO) child growth standards 2006 generated for boys and girls aged 0 to 60 months separately, Z score curves (height for age, weight for age and weight for height).

Statistical Analysis: Data was entered into computer based software SPSS version 16 and analysed. Appropriate statistical tools Frequency, Percentage, Mean, median, SD was used to describe the variables. The height and weight of each child (male & female separately) compared With the World Health Organization (WHO) growth standards. Children below two standard deviation of the reference median of any of the indices (height for age, weight for age and weight for height) were considered as malnourished and termed as stunted, wasted and underweight respectively. (Table 1)

Table no.1 classification of malnutrition by Z-score

Classification	Z- score values
Adequate	-2SD to +2 SD
Moderately malnourished	-3SD to -2 SD
Severely malnourished	Z < -3 SD

RESULT

Table 2: Distribution of children according to their Demographic Characteristics

Variables	Characteristics	n=385(100%)
Sex of the child	Male Female	196(51%) 189(49%)
Age	(0-11) months (12-23) months (24-35)months (36-47)months (48-59)months	13(3.4%) 37(9.6%) 53(13.7%) 120(31.2%) 162(42.1%)
Religion	Hindu Muslim Jain & Others	150(39%) 216(56.10%) 19(4.9%)
Socioeconomic status	Class I Class II Class III Class IV Class V	2(0.52%) 24(6.23%) 75(19.49%) 195(50.65%) 89(23.11%)
Type of breast feeding	Demand Time Bound	163(42.34%) 222(57.66%)
Exclusive breast feeding	Practiced Not practiced Continued	342(88.8%) 36 (9.4%) 7(1.8%)
Attending Anganwadi	Attending Not attending	275(71.4%) 118(28.6%)

Out of total 385 children, 196(51.0%) were males and 189(449.0%) were females. Majority 162(42.1%) of them were belonged to (48-59) months age group. The Mean ± SD age of the children was (3.27 ± 1.14) year. (table.2). Majority 216(56.1%) of them was belonged to Muslim religion followed by Hindu 150(39.0%). Majority 223(57.9%) of them belonged to nuclear family and Most of them were living in semi-pucka. only 32(8.3%) of the fathers and most of the 106(27.5%) of the mothers were illiterate. Most of the fathers were labour 133(34.5%) followed by Driver 115(29.9%) & private job 54 (14.0%) and most 320(83.1%) of the mothers were housewife. Only 95(24.68%) of the fathers were not consuming smoking & drinking but mostly 56(92.46%) of the mothers were not consuming it. The socio-economic status was low as most of them were in class IV 195(50.65%) & class V 89(23.11%). It was found that the majority 222(57.66%) of the children was breast fed in time bound and most 342(88.8%) of them were exclusively breast fed. It was also found that 275(71.4%) of the children were

attending to Anganwadi care. (Table 2 and able 3)

The overall prevalence of the malnutrition was found to be 196(51.0%) including stunting, wasting or underweight. The prevalence of the stunting was 100(26%) consisting moderate and severe degree of stunting 47(12.2%) & 53(13.8%). Similarly wasting was 86(22.3%) consisting moderate and severe degree of wasting 46(11.9%) & 40(10.4%). Prevalence of underweight was 123(32.0%) consisting moderate and severe degree of underweight 65(16.9%) & 58(15.1%) respectively. (Table 4)

Table 3: distribution of the children according to sex and age group:

Age (in months)	Male		Female		Total	
	No.	%	No.	%	No.	%
0-11	9	2.5	4	1.0	13	3.4
12-23	23	6.0	14	3.6	37	9.6
24-35	27	7.0	26	6.8	53	13.7
36-47	53	13.6	67	17.4	120	31.2
48-59	84	21.9	78	20.2	162	42.1
Total	**196**	**51.0**	**189**	**49.0**	**385**	**100.0**
Mean ± SD	**(3.23 ± 1.23) Years**		**(3.23 ± 1.04) years**		**(3.27 ± 1.14) years**	

Table 4: Distribution of children according to their nutritional status:

Indices	Normal		Moderate Undernourished		Severely undernourished		Total	
	No.	%	No.	%	No.	%	No.	%
Height for age (Stunting)	285	74.0	47	12.2	53	13.8	385	100
weight for height (Wasting)	299	77.7	46	11.9	40	10.4	385	100
Weight for age (Underweight)	262	68.0	65	16.9	58	15.1	385	100

DISCUSSION

Majority (51%) were male. Nearly half (42.1%) of them were in the age group of 48-59 months with comprising 21.9% male and 20.2% females. This finding was similar to the study conducted in Ondo state of Nigeria where majorities (34.9%) of the children were in the age group of 49-60 months. [8] In the present study we found half (50.65%) of the children were belonged to socio-economic class IV which was similar to the study conducted in the urban slum of Nagpur, where majority (54%) of the children was belonged to the class. [9] In our study majority (88.8%) of the children were breast fed exclusively and only 9.4% were not breast fed exclusively. Both male and female children were equal prone of malnourished. Female were slightly more 26.76% than male children 22.23%. Our finding was similar to a study conducted in Kadukurba tribe of Karnataka. [10] In the present study the overall prevalence of stunting was 26%, wasting was 22.3% and underweight was 32.0% respectively which was quite higher than our finding. A study conducted in Kadukurba Tribe of Karnataka found that prevalence of stunting, wasting and underweight was 55.4%, 43% and 60.4% respectively. [11]

CONCLUSION

Malnutrition was more prevalent among male children than female children. Majority of the children were Muslim. Inappropriate breast feeding and exclusive breast feeding practices were the major reasons. However, primary immunization was satisfactory. The mean height and weight of the children were lesser than the WHO reference data. Nearly one quarter of the children were stunted and wasted and

more than one third were underweight. MUAC was not a sensitive indicator and detected only few children as malnourished. Factors such as age of the child, lower socio-economic condition, types of breast feeding, exclusive breast feeding and sending children to Anganwadi were found to be significantly associated with nutritional status of children.

Limitations: The analysis was done by using WHO reference chart 2006, which may be vary for the Indian scenario. The study was done in urban area which may be not representative of the whole district.

RECOMMENDATION:

Importance of exclusive breast feeding and proper weaning thereafter should be promoted by explaining to mother properly. Environmental sanitation has to be promoted to reduce the infection and breaking the viscous cycle of infection leading to malnutrition. Socio-economic development of urban communities should need to be ensured which is the important factor to tackle malnutrition.

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