International Journal of Community Medicine and Public Health
Kausar HM et al. Int J Community Med Public Health. 2020 Mar;7(3):904-908
http://www.ijcmph.com
pISSN 2394-6032 | eISSN 2394-6040

DOI: http://dx.doi.org/10.18203/2394-6040.ijcmph20200938

Original Research Article

Study of under nutrition among under six years children in Kasturwadi village of disrtict Jalna, Maharashtra

Hina M. Kausar[1]*, Sujata Muneshwar[2]

[1]Department of Community Medicine, JIIU's Indian Institute of Medical Science and Research, Warudi, Badnapur, Jalna, India
[2]Department of Community Medicine, PIMS, Rural Medical College Loni, Maharashtra, India

Received: 13 December 2019
Accepted: 20 January 2020

***Correspondence:**
Dr. Hina M. Kausar,
E-mail: drhina84@gmail.com

ABSTRACT

Background: Malnutrition is a silent emergency. Malnutrition prevents children from reaching their full physical and mental potential. The health of children and youth is of fundamental importance. Without ensuring optimal child growth and development efforts to accelerate economic development significantly will be unsuccessful. Aim of the study was to study the prevalence of undernutrtion among the children under 6 years of age and to determine association of sociodemogrphic factors with undernutrition.
Methods: A community based cross-sectional study was conducted in children of under 6 years age living in the rural field practice area of Department of Community Medicine IIMSR, Warudi, Jalna, from January 2018 to December 2018. One ninety eight children were studied for nutritional status, socio-demographic measures were obtained from structured questionnaire and followed by anthropometric assessment using standards methods. Statistical analysis was done by using appropriate statistical test.
Results: Study found that 44.79% children were underweight, 47.92% were stunted and 39.58% were wasted. Among sociodemographic factors age, maternal educational, working status and SES class had an impact on nutritional status of child.
Conclusions: Prevalence of underweight, stunting and wasting was high in this study, this calls for educating mothers and other caretakers in the family regarding increased nutritional requirements with increasing age for attainment of best possible nutrition and growth in children, targeted short-term strategies addressing underlying risk factors and more long-term poverty alleviation strategies may be needed.

Keywords: Prevalence, Stunting, Under nutrition, Under six, Wasting

INTRODUCTION

Growth and development of any country is reflected by the growth and development of its children. Children constitute a major bulk of the population in our country, according to 2011 census 13.1% of the population in India is between 0-6 years of age.[1] The preschoolers (1 - 6 years) are at the greatest risk of malnutrition because of the fact that growing period demands high intake of proteins and calories.[2] Under nutrition is identified as a major health and nutrition problem in India. It is not only important cause of childhood morbidity and mortality, but leads also to permanent impairment of physical and possibly, of mental growth of those who survive.[3] It is particularly prevalent in developing countries, where it affects one out of every three pre-school child.[4] Malnutrition is a silent emergency.[5] It makes the child more susceptible to infection, recovery is slower and mortality Is higher. Undernourished children do not grow to their full potential of physical and mental abilities. Scarcity of suitable foods, lack of purchasing power of the family as

well as traditional beliefs and taboos about what the baby should eat often leads to an insufficient balanced diet , resulting in malnutrition.[6] A recent global analysis report demonstrated that child undernutrition is the leading cause of the global burden of disease.[7] Undernutrition continous to be a public health problem in India , As per The National Family Health Survey (NFHS)-4, 2015 - 2016, 35.7% children below five years are underweight, 38.4% are stunted and 21% are wasted in the country.[8] Anthropometric assessment is widely used and often regarded as the best single measure for health and nutritional status in children. Since young children are vulnerable to social and health hazards which can influence their growth and development, they deserve special attention by administration, general population and the family.[6]

Objectives

Objectives of the study were to study the prevalence of undernutrtion among the children under 6 years of age and to determine association of sociodemogrphic factors with undernutrition.

METHODS

A community based cross sectional study was carried out in the field practice area of rural health training centre (RHTC), Kasturwadi village, department of Community Medicine, Indian Institute of medical science and research, Warudi Badnapur, district Jalna for a period of one year from January 2018 to December 2018. All children under six years were taken for study. There was total 198 children in that village, 6 children were not available at home even on second visit so excluded. Hence Sample size was taken as 192. Study was started after permission of ethical committee of Indian Institute of medical science. Data was collected by using a predesigned and pre tested structured questionnaire. Informed oral consent was taken from the mother/care taker before examining the child and the aim of the study was explained to mother/ care taker.

Anthropometric measurements were carried out following standard methods. The data included weight, recumbent length (for children less than 24 months of age) and height (for children more than 24 months of age). Weight was measured to the nearest 0.1 Kg and electronic weighing machine was used for weight measurement. Height was measured against a non-stretchable tape fixed to a vertical wall, with the participant standing on a firm/level surface and it was measured to the nearest 0.5 cm. Recumbent length (for children less than 24 months of age) was measured by using an infant measuring board. Socio-economic status (SES) - was determined by using Modified B.G. Prasad's scale. Data was collected and spread using excel sheet and analyzed by using appropriate statistical test where required.

WHO classification was used for the assessment of malnutrition. Based on the age, body weight and height, a number of indices such as weight-for-age, height-for age and weight-for-height have been taken. The children are classified using three categories: 'underweight' (low weight-for-age), 'stunting' (low height-for-age) or 'wasting' (low weight-for-height).The height and weight of each child was compared with WHO growth reference data (2006) for that particular age and sex to get weight-for-age, height-for-age and weight-for-height indices. Children below -2 SD of the reference median on any of these indices were considered as undernourished and termed as underweight, stunted and wasted respectively. Children below -3 SD were considered to be severely undernourished.[9]

RESULTS

Table 1 shows age and sex wise distribution of total 192 children included in the study population. Number of children were more in the age group 60 months and above 36 (18.75%) followed by age group of 48 to 59 months and 36 to 47, 34 (17.71%) each, there were 31(16.15%) children in the age group of 0 - 11 months, 29 (15.10%) children were in the age group of 24 to 35 months age group and least 28 (14.58%) children were in the age group of 12 to 23 months. More than half (54.17%) of children were above the age of three year. Female children were more in number 103 (53.64%) as compare to male children 89 (46.35%).

Table 1: Age and sex wise distribution of study children (n=192).

Age (months)	Boys frequency	percentage	Girls frequency	percentage	Total frequency	percentage
0-11	14	15.7	17	16.50	31	16.15
12-23	11	12.35	17	16.50	28	14.58
24-35	16	17.97	13	12.62	29	15.10
36-47	15	16.85	19	18.44	34	17.71
48-59	16	17.97	18	17.47	34	17.71
60 and above	17	19.1	19	18.44	36	18.75
Total	89	46.35	103	53.64	192	100

Table 2 shows distribution of children according to WHO growth standard (2006) out of total 192 children involved in the study, percentage of Underweight (low weight-for-age) was 44.79% out of which percentage of severe underweight was 13.02%. The prevalence of stunting (low height-for-age) and severe Stunting was 47.92% and 18.23% respectively, reflected the problem of chronic malnutrition. Wasting (low weight-for-height) was present in 39.58% of children and proportion of severe wasting was 14.58%.

Table 2: Distribution of children according to malnutrition by WHO classification (n=192).

Indices	Undernourished (< -2SD and > -3SD)		Severely undernourished (< -3SD score)		Total	
	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage
Underweight (Low weight for age)	61	31.77	25	13.02	86	44.79
Stunting (Low height for age)	57	29.69	35	18.23	92	47.92
Wasting (low weight for height)	48	25.00	28	14.58	76	39.58

Table 3: Distribution of malnutrition in children according to various socio demographic factors.

Socio demo-graphic factors	Total		Underweight		Stunting		Wasting	
	Frequency	%	Frequency	%	Frequency	%	Frequency	%
Age (months)								
0 - 11	31	16.15	2	6.45	2	6.45	1	3.23
12 - 23	28	14.58	11	39.29	18	64.29	8	28.57
24 - 35	29	15.10	21	72.41	21	72.41	20	68.97
36 - 47	34	17.71	18	52.94	18	52.94	17	50
48 - 59	34	17.71	13	38.24	12	35.29	10	29.41
60 and above	36	18.75	21	58.33	21	58.33	20	55.56
Total	192	100	86	44.79	92	47.92	76	39.58
Chi square P value			χ^2 31.8921 0.00		χ^2 35.4164 0.00		χ^2 35.8773 0.00	
Sex								
Male	89	46.35	44	49.44	43	48.31	38	42.70
Female	103	53.64	42	40.78	49	47.57	38	36.89
Total	192	100	86	44.79	92	47.92	76	39.58
Chi square P value			χ^2 1.4485 0.228774		χ^2 0.0105 0.91828		χ^2 0.6724 0.412218	
Mother's education								
Illeterate	22	11.46	11	50.00	11	50.00	11	50.00
Prim. school	33	17.19	15	45.45	15	45.45	13	39.39
Middle school	93	48.44	38	40.86	42	45.16	34	36.56
High school	41	21.35	21	51.22	23	56.10	17	41.46
Inter-mediate and above	3	1.56	1	33.33	1	33.33	1	33.33
Total	192	100	86	44.79	92	47.92	76	39.58
Chi square P value			χ^2 1.6728 0.7957		χ^2 1.7565 0.7804		χ^2 1.4639 0.833	
Mothers working status								
Un-employed	31	16.15	13	41.94	14	45.16	12	38.71
Un-skilled worker	51	26.56	24	47.06	25	49.02	20	39.22
Skilled worker	1	0.52	1	100.00	1	100.00	1	100.00
Clerical/ farmer	109	56.77	48	44.04	52	47.71	43	39.45
Total	192	100	86	44.79	92	47.92	76	39.58
Chi square P value			$\chi^2$1.466 0.6902		χ^2 1.2081 0.7511		χ^2 1.5399 0.6731	

Continued.

Socio demo-graphic factors	Total		Underweight		Stunting		Wasting	
	Frequency	%	Frequency	%	Frequency	%	Frequency	%
SES								
I	8	4.17	2	25.00	2	25.00	2	25.00
II	27	14.06	8	29.63	7	25.93	7	25.93
III	54	28.13	10	18.52	10	18.52	10	18.52
IV	66	34.38	34	51.52	36	54.55	34	51.52
V	37	19.27	32	86.49	37	100.00	23	62.16
Total	192	100	86	44.79	92	47.92	76	39.58
Chi square			χ^2 46.0687		χ^2 66.9951		χ^2 24.6531	
P value			0.00		0.00		0.0001	

Table3 showed association of malnutrition with different socio-demographic factors. According to age group underweight was present in 2 (6.45%) children in 0 - 11 month age group. In the 12 - 23 months age group 11 (39.29%) children were underweight. Similarly in the 24-35 months, 36 - 47 months and 48 - 59 months, 60 and above age group children the prevalence of underweight was 72.41%, 52.94%, 38.24% and 58.33% respectively.

The prevalence was highest with 72.41% in 24 - 35 months age group being underweight and the difference was statistically significant (p=0.00). Similarly stunting was highest with 72.41% in 24 - 35 months age group and lowest with 6.45% in children in age group of 0-11 months and the difference was found to be statistically significant (p=0.00). Regarding wasting, again it was highest in 34 - 35 months age group affecting 68.97% children and the distribution of wasting among age group was also found to be statistically significant (p=0.00).

In the study 49.44% male children were underweight, 48.31% were stunted and 42.70% were wasted, that was more as compare to female children, 40.78% female children were underweight, 47.57% were stunted and 36.89% were wasted. But the difference was not found to be statistically significant (p≥0.05).

The percentage of underweight, stunting and wasting among children of illiterate mothers was 22 (50%) each and lowest 01 (33.3%) each among children whose mothers have education intermediate and above but the difference was found to be not statistically significant (p≥0.05).

With regards to occupation of the mother underweight, stunting and wasting was highest i.e. 1 (100%) each in a child whose mother was skilled worker, followed by 24 (47.06%), 25 (49.02%) and 20 (39.22%) underweight, stunting and wasting respectively among children of unskilled worker and underweight, stunting and wasting was lowest 41.94%, 45.16% and 38.17% respectively among children whose mother were unemployed but is was not found to be statistically significant (p≥0.05).

With regards to socio-economic status, majority 66 (34.38%) of children belonged to Class IV according to modified B.G. Prasad's classification. 54 (28.13%) children belonged to Class III and 37 (19.27%) children belongs to class V, there were 8 (4.17%) children and 27 (14.06%) belongs to class I and class II respectively.

Underweight, stunting and wasting was highest in class V 32 (86.49%), 37 (100%), 23 (62.16%) followed by class IV children 34 (51.52%), 36(54.55%) and 34 (51.52)% respectively and underweight, stunting and wasting was lowest in class I 2 (25%) each , and it was found to be statistically significant (p≥0.00).

DISCUSSION

Present study found the prevalence of different categories of undernutrition and its correlates among under six years age of rural children. In the study out of total 192 children involved in the study, 44.79% children were underweight, 47.92% were stunted and 39.58% were wasted. In a similar study by Gholamreza et al they found that 47.8% children were underwight, 45% were stunted and 32.2% were wasted.[10] Panigrahi et al found 45.4% children were underweight, 57.4% were stunted and 23.3% were wasted.[11]

Popat et al found 32.4% children were underweight, 46% were stunted and 17.2% were wasted this prevalence of underweight and stunting were lower than present study.[12]

There was association of age and undernutrition, were seen in our study as also observed in a study by Goel et al.[2] In this study it was observed that boys are more likely to be stunted ,wasted and underweight than girls. Similar findings were found in a study by Panigrahi et al.[11]

Education of the mother is important factor in predicting nutritional status of children, the percentage of underweight, stunting and wasting among children of illiterate mothers was 22 (50%) each and lowest 01 (33.3%) each among children whose mothers have education intermediate and above. The study does not found significant relationship between mother's education

and working status with undernutrition of children but Goel et al found literacy of the mother was found to be statistically associated with under nutrition, Gholamreza et al found prevalence of underweight and stunting had significant relationship to mother's education and job.[2,10]

With regard to socioeconomic status the proportion of under nutrition was highest among children who belonged to class V whereas lowest in children belonging to class I, similar findings were documented in a study by Yadav et al they found more number of children were underweight in lower socioeconomic status.[12] Singh et al observed that prevalence of under-nutrition was higher among children from low income group as compared to higher income group.[5]

CONCLUSION

The study concluded that under nutrition is an important nutrition health problem in rural area, in present study majority of children were above the age of 3 years, percentage of female children was more as compared to male children, prevalence of underweight was 44.79%, stunting was 47.92% and wasting was 39.58%. Statistically significant relation was found between age of children and socioeconomic status of the family with under rnutrition.

Recommendations

Proper nutritional care of the children with special attention of under six age children should be taken by family and community, mother should be educated regarding growth monitoring of her child and overall literacy and education level should be raised with more emphasis given to female education.

ACKNOWLEDGEMENTS

Authors are thankful to study participants and their parents for their co-operation for this study.

Funding: No funding sources
Conflict of interest: None declared
Ethical approval: The study was approved by the Institutional Ethics Committee

REFERENCES

1. Ministry of Health and Family Welfare, GOI. Provisional population Totals: India: Census 2011. Available at http://www.censusindia.gov.in/2011-prov-results/. Accessed on 10 November 2019.
2. Goel M K, Mishra R, Gaur DR, Das A. Nutritional surveillance In 1 - 6 years old children in urban slums of a city in northern India. Int J Epidemiol. 2007;5(1):22-7.
3. Nutrient requirement and recommended dietary allowances for India a report of the expert group of the ICMR. ICMR (2010).
4. United Nations 5th Report on the World Nutrition situation: Nutrition for improved Development outcomes United Nations system standing Committee on Nutrition. 2004.
5. Singh JP, Gupta SB, Shrotriya VP, Singh PN. Study of nutritional status among under five children attending out-patient department at a primary care rural hospital, Bareilly (UP). Sch J App Med Sci. 2013;1(6):769-73.
6. Park K. Park's text book of preventive medicine, 25th edition, Banarasidas Bhanot Publisher Jabalpur; 2019.
7. Dhone AB, Chitnis UB, Bhawalkar JS, Jadhav SL. Epidemiological study of under nutrition among under fi ve years children in an urban slum. Med J DY Patil Univ. 2012;5:110-3.
8. Government of India. National Family Health survey 2015-2016, Ministry of Health and Family Welfare, New Delhi. 2017.
9. World health organization. The WHO Child Growth Standards. Available at http:// www. who. int/ childgrowth/standards/en/. Accessed on 12 December 2019.
10. Gholamreza S, Hassan M, Soori R. Prevalence of malnutrtion in under 6 year olds in south Khorasean, Iran. Iran J Pediatr. 2010;20(4):435-41.
11. Panigrahi A, Das SC. Undernutrition anit's correlates among children of 3 - 9 years of age residing in slum Areas of Bhubaneshwar, India. Scien World J. 2009;18:77-9.
12. Popat CN, Chaudhari AI, Mazumdar VS, Patel SV. A cross sectional study to measure the prevalence of malnutrition and factors associated with malnutrition among under five children of an urban slum of Vadodara city. J Res Med Den Sci. 2014;2(3):59-64.

Cite this article as: Kausar HM, Muneshwar S. Study of under nutrition among under six years children in Kasturwadi village of disrtict Jalna, Maharashtra. Int J Community Med Public Health 2020;7:904-8.