

**CURRENT STATUS OF NUTRITION AMONG UNDER FIVE CHILDREN OF SLUM AREAS OF AGRA**Lokesh Agarwal<sup>1</sup>, Anjali Jain<sup>2</sup>, J. P. Pankaj<sup>3</sup>, Ashish Jain<sup>4</sup>, Sanjoli Paruthy<sup>5</sup>**HOW TO CITE THIS ARTICLE:**

Lokesh Agarwal, Anjali Jain, J. P. Pankaj, Ashish Jain, Sanjoli Paruthy. "Current Status of Nutrition among under Five Children of Slum Areas of Agra". Journal of Evolution of Medical and Dental Sciences 2014; Vol. 3, Issue 58, November 03; Page: 13120-13125, DOI: 10.14260/jemds/2014/3744

**ABSTRACT: BACKGROUND:** In the developing countries, children of 0-5 years of age not only form a large group but they also a "vulnerable or high risk" group. 50% of all deaths occur among children during the first five years of life in developing world. The present study was done with the objective of assessing the nutritional status among 0-5 years of age child. **METHODS:** Community-based cross-sectional study was conducted in the slum area of Agra city; the urban field practice area of S.N. Medical College, Agra, in January 2011, through house to house visit till the sample size of 224 was achieved. Children of 0-5 years of age were weighed with the standard weighing machine. Their mothers were subjected to personal interview for the estimation of their current age. A pre-designed, pre-tested, semi-structured interview proforma was used to collect the data. The collected data was compared with National Center for Health Standards (NCHS) and analyzed by using appropriate statistical methods. **RESULTS:** 46.3% of the boys of 13-24 months were found to have moderate malnutrition which decreases with increase in age from 47.5% in 25-36 months to 45.5% in 49-60 months age group. Similarly severe underweight (21.9%) boys were found to be maximum in 13-24 months age group. Maximum children who were stunted were in the age group of 13-24 months age. Overall 29.9% of children had decrease height for weight. **CONCLUSIONS:** Malnutrition in under five children, especially in the children of 13-24 months is most prevalent. Malnutrition was more common among females than males.

**KEYWORDS:** Nutrition, below 5 children, urban slums, underweight.

**INTRODUCTION:** In the developing countries, children of 0-5 years of age not only form a large group but they also a "vulnerable or high risk" group.<sup>[1]</sup> 50% of all deaths occur among children during the first five years of life in developing world that equals a population of deaths occurring in people over 70 years in developing world.<sup>[1]</sup> Just by improving nutrition of under-five, we can prevent mortality and morbidity to a great extent.

The third National Family Health Survey estimated that 45.9% of Indian children and 41.6% of children in Uttar Pradesh below 3 years of age are underweight, 38.4% of Indian children and 52.4% of children in Uttar Pradesh below 3 years of age are stunted, 19.1% of Indian children and 19.5% of children in Uttar Pradesh below 3 years of age are wasted.<sup>[2]</sup>

Despite global efforts for improving maternal and child health and specific efforts like Integrated Child development Services Scheme, malnutrition among children remains a significant problem in India constituting 48%, 43% and 20% of children under 5 years of age stunted, underweight and wasted respectively.<sup>[3]</sup>

Nutritional deficiency disorders are major health problems of young children in India resulting in high rate of morbidity and mortality. Malnutrition in early childhood has serious, long term consequences because it impedes motor, sensory, cognitive, social and emotional development.

## ORIGINAL ARTICLE

---

Malnourished children are less likely to perform well in school and more likely to grow into malnourished adults, at greater risk of disease and early death. Children residing in slums are more vulnerable to it. Keeping this in view, a study was carried out with the objective of assessing the nutritional status among 0-5 years of age child.

**MATERIALS AND METHODS:** The present study is a community-based cross-sectional study. The study was conducted in the slum area of Agra city; the urban field practice area of S.N. Medical College, Agra, in January 2011, through house to house visit till the sample size of 224 was achieved. The study was done with the help of intern doctors and medical social workers.

Children of 0-5 years of age were weighed with the standard weighing machine with zero adjustment each time, with minimum clothing and to the nearest of 100 gm. The height/ length were measured by a measuring tape. Height was measured in meters from highest point on head to heel. Their mothers were subjected to personal interview for the estimation of their current age by birth certificate and by asking about the date of birth with the help of local calendars. A pre-designed, pre-tested, semi-structured interview proforma was used to collect the data.

The collected data was compared. According to WHO criterion based on standard deviation (SD) units, children who were more than two SDs below the reference median were considered undernourished, that is, underweight, stunted and wasted.<sup>[4]</sup> The data was compiled and statistical analysis was done using percentage and chi-square test.

**RESULTS:** As table 1 depicts nearly half (46.3%) of the boys of 13-24 months were found to have moderate malnutrition which decreases with increase in age from 47.5% in 25-36 months to 45.5% in 49-60 months age group. Similarly severe underweight (21.9%) boys were found to be maximum in 13-24 months age group which further decreases with increase in age. Half (47.7%) of the girls of 13-60 months age group were underweight and severe wasting was maximum (30%) in 13-24 months followed by nearly one-fourth girls in 25-60 months.

Over all, also maximum underweight children were in 13-24 months age group (73.8%) which decreases with increase in the age of child from 69.7% to 67.5%. Maximum children who were stunted were in the age group of 13-24 months age group (90.5%) (Table-2). And the number of stunted children decreased as the age group increased from 89.4% to 67.5% in 4-5 years children.

81.3% of children were stunted of which females (81.8%) were more than males (80.9%). Overall 29.9% of children had decrease height for weight (Table-3). 44.4% of male infants while 45.4% of female infants had malnutrition. Similar trend is also seen here like in the height for age and weight for age seen i.e. children of 13-24 months were maximum malnourished.

**DISCUSSION:** Not getting basic human necessities adversely affect the growth and nutritional status of the weaker section of a disadvantaged community that is children of an urban slum. Most slum dwellers in India belong to the category of 'permanent necessitans' that are forced to live in the existing eco-cultural slum situations on account of poverty and social discard.

Being the most vulnerable segment of the community the preschoolers are at the greatest risk of malnutrition since it is their growing period which demands high intake of proteins and calories.

The problem of malnutrition among under-fives of slums has been estimated to be 67.4% compared to 65% for the country as a whole.<sup>[1]</sup>

## ORIGINAL ARTICLE

---

Taking weight for age as criteria, only 32.6% of preschool children could be labeled as normal and the rest were underweight; with about 20.5% children were below 3SD weight while Rasania SK et al in a study in Delhi reported only 8.8% of severe children.<sup>[5]</sup> One of the major advantages of defining problem of malnutrition in children in terms of 'stunting', underweight and wasting is that it distinguishes between types of malnutrition i.e. whether it is chronic or acute.<sup>[1]</sup>

Height for age i.e. stunting is the sign of chronic malnutrition, weight for age (underweight) is quite often used as an indicator of malnutrition in the surveys for nutritional assessment.<sup>[1]</sup> Weight for height i.e. wasting, is an age independent index and reflects the nutritional deprivation of shorter duration. The present study revealed that chronic malnutrition (81.3%) was more prevalent than acute malnutrition (67.4%) and findings are similar to those of other studies.<sup>[5,6]</sup>

In our study, malnutrition was more common among females than males, although this was not statistically significant. In a study in Ludhiana, the female child was observed to be not only suffering more from PEM as compare to male, but also suffering more from the severe degree of malnutrition and the differences in the prevalence and severity based on sex has been observed to be statistically highly significant.<sup>[7]</sup>

In the present study also, severe grade of malnutrition was higher among females than males. Studies at Delhi, Ausgram and Darjeeling also observed similar trends, showing more females were malnourished than males, this could be the neglect of female children especially with reference to intra-familial food distribution.<sup>[5,8,6]</sup> However, Hossain et al failed to observe any significant difference in nutritional status between boys and girls.<sup>[9]</sup>

Malnutrition in under five children, especially in the children of 13-24 months is most prevalent, which is still a major problem in our country as there are many reasons behind this. Firstly, in India as next child comes in the lap of mother in the next 1-2 years and her attention diverts from the older child, secondly the older child is now taken care off like feedings, hygiene etc. by other relatives and last but not the least the child starts moving and eats unhygienic or non-eatables which further leads to more diarrhea and other infections leading to further loss of weight.

With rapid growth of urban slums malnutrition of children will be an increasing problem unless urgent child health promotion activities coupled with nutritional education programmers are directed towards this under privileged and vulnerable group. To affect a positive result the integrated child development services scheme should cover all the slum areas and be rigorously implemented so as to enable the children in the slums to realize their full growth and development potential.

**CONCLUSION:** As study is done in the urban slums where the community is also economically poor, then how we can advise such poor people to give costly food to their children. But the answer to this problem already exists within the community i.e. empowering women in the household by increasing their literacy status, relying on good traditional dietary practices like having 'low-cost balanced diet', changes in 'food-consumption pattern' will have more impact in improving malnutrition.

And also every endeavor should be made to combat this problem through multi-pronged approach like growth monitoring, nutritional supplementation and nutritional rehabilitation and last but not the least nutritional education.

## REFERENCES:

1. Park K, Textbook of Preventive and Social Medicine, Banarasi Das & Bhanot Publishers, Jabalpur, India, 21<sup>st</sup> ed. P.480, 530-32.
2. International Institute for Population Sciences (IIPS) and Macro International.2008. National Family Health Survey (NFHS-3), India, 2005-06: Mumbai.
3. Islam S, Mahanta TG, Sarma R, Hiranya S. Nutritional status of under 5 children belonging to tribal population living in riverine (Char) areas of Dibrugarh district, Assam. Indian J Community Med 2014; 39: 169-74.
4. WHO-NCHS Standards for child growth and development. Accessed from: <http://www.motherchildnutrition.org/malnutrition-management/info/nchs-who-normalized-references.html#VCEyZpSSwRN>.
5. Rasanias SK and Sachdev TR. Nutritional Status and Feeding Practices of children attending MCH centre. Indian Journal of Community Medicine 2001; 26 (3): 145-49.
6. Ray SK, Biswas AB, Gupta SD, Mukherjee D et al. Rapid Assessment of Nutritional status and Dietary pattern in Municipal area. Indian Journal of Community Medicine 2000; 25 (1): 14-19.
7. Benjamin AI et al. Nutritional Status and feeding practices in under 3 years old children in the rural community in Ludhiana, Punjab. Health and Population- Perspectives and Issues 1993: 16 (1&2): 3-21.
8. Banerjee B and Mandal ON. An Intervention study in Malnutrition among Infants in a tribal community of West Bengal, Indian Journal of Community Medicine 2005; 30 (1): 27-30.
9. Hossain MI et al. Nutritional and Immunization status. Weaning practices and socio-economic conditions of under-five children in 3 villages of Bangladesh. Indian Journal of Public Health 1999; 43 (1): 37-41.

Age (in months)	*Boys				@Girls				Total
	Normal	Moderate under weight	Severe under weight	Total	Normal	Moderate under weight	Severe under weight	Total	
0-12 months	8 (44.4)	7 (38.9)	3 (16.7)	18 (100)	9 (40.9)	9 (40.9)	4 (18.2)	22 (100)	40 (100)
13-24 months	9 (28.1)	16 (50.0)	7 (21.9)	32 (100)	2 (20)	5 (50.0)	3 (30.0)	10 (100)	42 (100)
25-36 months	13(32.5)	19 (47.5)	8 (20.0)	40 (100)	7 (26.9)	13 (50.0)	6 (23.1)	26 (100)	66 (100)
37-48 months	9 (37.5)	11 (45.8)	4 (16.7)	24 (100)	3 (25)	6 (50.0)	3 (25.0)	12 (100)	36 (100)
49-60 months	8 (36.4)	10 (45.5)	4 (18.2)	22 (100)	5 (27.8)	9 (50.0)	4 (22.2)	18 (100)	40 (100)
<b>Total</b>	<b>47(34.6)</b>	<b>63 (46.3)</b>	<b>26(19.1)</b>	<b>136(100)</b>	<b>26(29.5)</b>	<b>42(47.7)</b>	<b>20(22.7)</b>	<b>88 (100)</b>	<b>224 (100)</b>

\* $\chi^2=69.32$ ; df-8;  $p<0.0001$ ; @ $\chi^2=2.18$ ; df-8;  $p>0.05$ ; Percentages in parenthesis

Table 1: Weight for Age of the 0-5 year's children

## ORIGINAL ARTICLE

Age (in months)	*Boys				@Girls				Total
	Normal	Moderate under weight	Severe under weight	Total	Normal	Moderate under weight	Severe under weight	Total	
0-12 months	11 (61.1)	5 (27.8)	2 (11.1)	18 (100)	12 (54.5)	7 (31.8)	3 (13.6)	22 (100)	40 (100)
13-24 months	3 (9.4)	19 (59.4)	10 (31.3)	32 (100)	1 (10.0)	6 (60.0)	3 (30.0)	10 (100)	42 (100)
25-36 months	4 (10.0)	23 (57.5)	13 (32.5)	40 (100)	3 (11.5)	15 (57.7)	8 (30.8)	26 (100)	66 (100)
37-48 months	3 (12.5)	14 (58.3)	7 (29.2)	24 (100)	1 (8.3)	7 (58.3)	4 (33.3)	12 (100)	36 (100)
49-60 months	5 (22.7)	12 (54.5)	5 (22.7)	22 (100)	4 (22.2)	10 (55.6)	4 (22.2)	18 (100)	40 (100)
<b>Total</b>	<b>26 (19.1)</b>	<b>73 (53.7)</b>	<b>37 (27.2)</b>	<b>136 (100)</b>	<b>16 (18.2)</b>	<b>49 (55.7)</b>	<b>23 (26.1)</b>	<b>88 (100)</b>	<b>224 (100)</b>

\* $\chi^2$ -25.79; df-8; p<0.001; @ $\chi^2$ -16.51; df-8; p<0.05; Percentages in parenthesis

**Table 2: Height for Age of the 0-5 year's children**

Age (in months)	*Boys				@Girls				Total
	Normal	Moderate under weight	Severe under weight	Total	Normal	Moderate under weight	Severe under weight	Total	
0-12 months	10 (55.6)	6 (33.3)	2 (11.1)	18(100)	12 (54.5)	8 (36.40)	2 (9.1)	22 (100)	40 (100)
13-24 months	21 (65.6)	8 (25.0)	3 (9.4)	32(100)	5 (50.0)	3 (30.0)	2 (20.0)	10 (100)	42 (100)
25-36 months	30 (75.0)	7 (17.5)	4 (7.5)	40(100)	20 (76.9)	4 (15.4)	2 (7.70)	26 (100)	66 (100)
37-48 months	19 (79.2)	4 (16.7)	1 (4.2)	24(100)	9 (75.0)	2 (16.7)	1 (8.3)	12 (100)	36 (100)
49-60 months	17 (77.3)	4 (18.2)	1 (4.5)	22(100)	14 (77.8)	3 (16.6)	1 (5.6)	18 (100)	40 (100)
<b>Total</b>	<b>97(71.3)</b>	<b>29 (21.3)</b>	<b>10 (7.4)</b>	<b>136(100)</b>	<b>60 (68.2)</b>	<b>20 (22.7)</b>	<b>8 (9.1)</b>	<b>88 (100)</b>	<b>224 (100)</b>

\* $\chi^2$ -4.29; df-8; p>0.05; @ $\chi^2$ -6.46; df-8; p>0.05; Percentages in parenthesis

**Table 3: Weight for Height of the 0-5 year's children**

**AUTHORS:**

1. Lokesh Agarwal
2. Anjali Jain
3. J. P. Pankaj
4. Ashish Jain
5. Sanjoli Paruthy

**PARTICULARS OF CONTRIBUTORS:**

1. Associate Professor, Department of PSM, Karpagam Faculty of Medical Science and Research, Coimbatore.
2. Assistant Professor, Department of PSM, M. G. Medical College, Jaipur, Rajasthan.
3. 2<sup>nd</sup> Year Resident, Department of PSM, M.G. Medical College, Jaipur, Rajasthan.

4. Attending Consultant, Cardiac Anaesthesia, Medantha-the Medicity, Gurgaon, Haryana.
5. 3<sup>rd</sup> Year Student, MBBS, M.G. Medical College, Jaipur, Rajasthan.

**NAME ADDRESS EMAIL ID OF THE CORRESPONDING AUTHOR:**

Dr. Anjali Jain,  
B-13, Near Jain Temple,  
Kirti Nagar, Tonk Road,  
Jaipur-302018.  
Email: Anjali.paras08@gmail.com

Date of Submission: 17/10/2014.  
Date of Peer Review: 18/10/2014.  
Date of Acceptance: 29/10/2014.  
Date of Publishing: 31/10/2014.