



## Malnutrition and its related factors among children 0-5 years in rural Shamirpet mandal, Ranga reddy district, India.

Pavani Varma M.<sup>1\*</sup>, K. S. V. Prasad<sup>2</sup>

<sup>1</sup>Department of Community Medicine, Apollo Institute of Medical Sciences and Research, Hyderabad, Telangana, India.

<sup>2</sup>Department of Community Medicine, Medicit Institute of Medical Sciences. Hyderabad, Telangana, India.

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**Abstract:** The problem of malnutrition and hunger has threatened mankind in the past and present. It is of international concern. To determine the association between prevalence of undernutrition, socio-demographic and maternal characteristics. It is a cross sectional study. 400 children were examined for their weights and heights. Information is collected regarding the risk factors which are usually associated with undernutrition. The relevant information was recorded from each village of the mandal according to probability proportion to size. Significant association has been found with birth weight, birth interval and maternal occupation. Health education of parents regarding importance of ante-natal check-ups, proper birth spacing is essential.

**Key words:** Malnutrition; public health problem; birth weight; birth interval; occupation; health education.

### Introduction

Nutrition may be defined as the science of food and its relationship to health. It is concerned primarily with part played by nutrients in body growth, development and maintenance. Good nutrition means maintaining a nutritional status that enables an individual to grow well and enjoy good health. Nutritional status of an individual is often the result of many interrelated factors. It is influenced by the adequacy of food intake both in terms of quantity and quality and also by physical health of the individual. Nutritional status of children is an indicator of nutritional profile of the community. Malnutrition has been defined as a pathological state resulting from relative or absolute deficiency or excess of one or more essential nutrients.

Nutrition of a community is the cornerstone of socio-economic development, and nutritional problems are not only medical problems, they also involve other sectors such as education, social welfare, agriculture and rural development. Socio-demographic factors such as age of the mother, large family size, gender discrimination, birth order, birth spacing, multiple births, and high fertility have an adverse effect on child survival and development. Environmental factors like parental education, socio-economic status, type of housing, overcrowding, type of water supply for drinking, sanitation, standard of living, parental attitudes, child rearing practices influence growth and development of children.<sup>(1)</sup>

According to the UNICEF report on children, anthropometric findings reveal prevalence of moderate to severe undernutrition as 15%, and severe

Under nutrition 9%, stunting 25% and wasting 8%<sup>(2)</sup>. In Andhra Pradesh the report of NNMB has shown 36.6 % children are underweight for age, 44.6% stunted, 15% wasted.<sup>(3)</sup> To determine the association between prevalence of undernutrition, socio-demographic and maternal characteristics.

### Materials and Methods

It is a Cross-sectional study. Children of the age group under 60 months under the field practice area are included. The total population in Ranga Reddy district is 52,96,396 and children 0-6 years are 5,95,352 (according to A.P census 2011). Population of study villages is 25,869 (2011 census). It can be expected that there will be 2600 under five children approximately. Sample size was determined adopting the formula  $4PQ/L^{2*}$  in which P is the prevalence of under nutrition in children less than 60 months, Q is (1-P) and L is the allowable error i.e., 5% of absolute error. The assumption that prevalence is 43% of underweight children according to National Family Health Survey 3.<sup>(4)</sup> By taking the prevalence as 43%, sample size is obtained. The formula used for sample size calculation =  $4 \times 43 \times 57 / 5 \times 5 = 392$  children. The sample size worked out to 392 children and it was rounded off to 400. Prior to initiation of the study 10% of the sample size was pre-tested to augment the validity of the questionnaire. 40 children under 5 years of age were visited, questionnaire was administered to respondent who was the mother of the child under study. After the pre-test corrections that are required were made to the questionnaire and the study was commenced. Sampling was done following systematic random method. At each village anganwadi

### \*Corresponding Author:

Dr. M. Pavani Varma,  
Assistant Professor,  
Department of Community Medicine,  
Apollo Institute of Medical Sciences and Research,  
Hyderabad, Telangana, India.

**E-mail:** [pavanimims@gmail.com](mailto:pavanimims@gmail.com)



of that village was visited. From the left of anganwadi the first house is visited. If there are no houses in that direction then, data collection was started from the place where group of houses were located near the anganwadi. After the first house, every 5<sup>th</sup> house was visited, if children under 5 yrs were not present in the house, or the house was locked, the immediate next house was visited. All the 13 villages enlisted under RHTC Aliabad, were proportionally sampled according to size of the population of that village.

**Table 1:** Distribution of underweight children according to Birth Weight

Birth Weight	Underweight (n= 170)		Normal (n= 230)		Total (n= 400)	
	No.	%	No.	%	No.	%
< 2.5	53	63.10	31	36.9	84	100
= >2.5	117	37.03	199	62.97	316	100
Total	170	42.5	230	57.5	400	100

$\chi^2 = 18.455$  and  $p = 0.0000$  (highly significant)

In the present study 316 (62.97%) had normal birth weight. Maximum number of the children who had birth weight less than 2.5kgs were undernourished i.e. 53 out of 84, (63.10%). In comparison are the children with birth weight more than or equal to 2.5 kg, their proportion was 37.03%. Both groups were significantly different in terms of birth weight based on the chi square test and p value of 0.000.

**Table 2:** Distribution of underweight children according to Birth Interval.

Birth Interval	Underweight (n= 122)		Normal (n= 139)		Total (n= 261)	
	No.	%	No.	%	No.	%
< = 1 year	36	64.29	20	35.71	56	100
1 – 2 years	33	40.24	49	59.76	82	100
> 2 years	53	43.09	70	56.91	123	100
Total	122	46.74	139	53.26	261	100

$\chi^2 = 8.9738$  and  $p = 0.011$  (significant)

(Among the study population 139 children were first offspring of the parents. Information about birth interval was not elicited from them.)

In the present study, maximum proportion of underweight i.e. 36 (64.29%) out 56 is seen in children in whom birth spacing was less than or equal to 1 year compared to 53 (43.09%) and 33 (40.24%) in whom birth interval was >2 and 1-2 years. Based on the chi square test, there is statistically significant difference between underweight among children and birth interval.

**Table 3:** Distribution of underweight children according to Occupation of Mother.

Mother's Occupation	Underweight (n= 170)		Normal (n= 230)		Total (n= 400)	
	No.	%	No.	%	No.	%
Housewife	114	37.38	191	62.62	305	100
Working Mother	56	58.95	39	41.05	95	100
Total	170	42.5	230	57.5	400	100

$\chi^2 = 13.791$  and  $p = 0.0002$  (highly significant)

(For convenience of calculation 6 occupational groups are merged into 2 groups. The group housewife includes mothers who stay at home, the group working mothers includes, agricultural labourers, other labourers, artisans,

owner cultivators, semi-professionals, professionals). Mothers who are housewives had less proportion of underweight children compared to mothers who are working. The proportion of underweight among children of working mothers is (58.95%) when compared to children whose mothers are housewife's (37.38%). There is a marked statistical significance between underweight children of working mothers and housewives.

**Discussion**

Out of 400 children 170 children were under weight. That apart out of 400 children 84(21%) were having birth weight <2.5Kgms. 316 children had a birth weight greater than or equal to 2.5Kgms. Out of 84 children who had low birth weight 53 children (63.1%) were under weight. Out of 316 children who had normal or above normal birth weight 117 children (37.03%) were having underweight. That is maximum number of the children who had birth weight < 2.5 kgs were undernourished i.e. 53 (63. 10%). This difference in prevalence of underweight in terms of birth weight is statistically significant based on  $\chi^2 = 18.455$  and p value =0.0000.

These findings are in confirmation with A Basit<sup>(5)</sup> *et al.*, (2012), Shreyash J Gandhi<sup>(6)</sup> *et al.*, (2014), Paramita Sengupta<sup>(7)</sup> *et al.*, (2010), and Nguyen Ngoc Hien<sup>(8)</sup> *et al.*, (2008), Birth weight is an important factor causing undernutrition. The new born babies who have birth weight < 2.5 kg continue the trend of undernutrition. It is obvious that if proper breastfeeding practices are followed and complementary feeds given at appropriate time children can break this trend of underweight and continue with normal weight.

In the present study greater proportion of underweight i.e. 36 (64.29%) was seen in children in whom birth spacing was less than or equal to 1 year compared to 53(43.09%) and 33(40.24%) in whom birth spacing was >2 and 1-2 years. Based on the chi square test, there is statistically significant difference between the nutritional status and birth interval based on  $\chi^2 = 8.9738$  and  $p = 0.011$  value. This is in confirmation with Paramita Sengupta<sup>(7)</sup> *et al.*, (2010) and Ahmed Shahjada<sup>(9)</sup> *et al.*, (2014)

With reduced birth spacing mother has difficulty in taking care of both children in, she tend person, to be weak after deliveries that occur with less gap or no gap between them. Unless some caretaker is helping the mother proper care of both the children is difficult. There could be low quality and quantity of food being served. So all these factors put together can affect the nutritional status of the child.

Mothers who are housewives had less proportion of undernourished children compared to mothers who are working. The proportion of underweight among children of working mothers is 58.95% when compared to children whose mothers are housewife's (37.38%).

There is a marked statistical significance between nutritional status among mothers and occupation of mother in the present study based on  $\chi^2 = 13.791$  and  $p = 0.0002$  value.

The findings of study are not in confirmation with A Mittal<sup>(10)</sup> *et al.*, (2014), Mothers who are pre-occupied with hurries and worries of work place. Hence, they tend to pay little attention to their children. This overburden reflects adversely on childrearing. If there is proper care giver at home while the mother is at work, the children have more chance of being better nourished. Mothers also have to work due to low per capita income of the family. Low earnings and busy at work might contribute to the undernourishment of the child.

### Conclusion

The study underlines the factors such as birth weight, birth interval and maternal education and occupation affects the nutritional status of the child. Health education of mothers and fathers regarding prenatal care, proper spacing method and importance of national health programmes can be useful to prevent under nutrition among children.

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