RESEARCH PAPER | Medical Science | Volume : 5 | Issue : 10 | October 2015 | ISSN - 2249-555X

Prevalence of Undernutrition Among Under 5 Children in A Rural Area

KEYWORDS: Prevalence, Under Nutrition, Under 5 children

Dr.A. MERITON STANLY
Professor, Department of community medicine, Sri Ramachandra Medical College & Research Institute Sri Ramachandra University Porur, Chennai-600 116

Dr.V. SAMYA
Assistant professor, Department of community medicine, Sri Ramachandra Medical College & Research Institute Sri Ramachandra University Porur, Chennai-600 116

ABSTRACT

Introduction: *There are many health programmes being implemented specifically aiming to reduce child morbidity and mortality. Children with severe malnutrition have high mortality rates. The community has not been explained of the risk that severely malnourished children due to diarrhea have an increased risk of death. It is important to know the prevalence of malnutrition for reducing the morbidity and mortality in children.*

Aim: *To estimate the prevalence of under nutrition among under 5 children in a rural population*

Materials and Methods:This was a cross sectional study done among children among 5 years in a rural area. The required sample size was 385 by using an alpha error of 5% and absolute precision 5%. The under 5 children were selected by simple random sampling technique. The data was collected with a pre tested questionnaire from house to house survey from june 2014 to November 2014 in a rural area.

Results:*This study was done among 385 under 5 children. Among the selected children 50.7% were males and 49.3% were females. Based on IAP classification, the prevalence of under nutrition was 42.9% and that were among the males were 21.1% and 21.8% among females. Children with birth weight less than 2.5 kg had 2.9 times greater risk of under nutrition and found to be statistically significant. Children who did not have exclusive breastfeeding had 2.7 times higher risk of under nutrition*

Conclusion: *The prevalence of under nutrition can be reduced by proper Antenatal care, exclusive Breast feeding, commencement of weaning at right time, complete immunization and proper personal hygiene*

Introduction:
One of the main health problems encountered among the children under 5 years is Under nutrition. There are many health programmes being implemented specifically aiming to reduce child morbidity and mortality.[1] Diarrhea also causes Malnutrition because nutrients like Zinc are lost from the body [2] which is used to repair the damage tissue. Children with severe malnutrition have high mortality rates. Health personnel often do not give sufficient emphasis on the need for nutrition [3]. The community has not been explained of the risk that severely malnourished children due to diarrhea have an increased risk of death [4].Case fatality rates in children with severe malnutrition is remaining unchanged at20-30% [5] over the past decades. It is important to know the prevalence of malnutrition for reducing the morbidity and mortality in children. The needs of children and our duties are enshrined in our constitution also.

Aim:
To estimate the prevalence of under nutrition among under 5 children in a rural population.

Materials and Methods:
This was a cross sectional study done among children among 5 years in a rural area. The sample size was calculated by taking the prevalence of under nutrition as 50% since it varied from 40 to 60%. The required sample size was 385 by using an alpha error of 5% and absolute precision 5%.

The under 5 children were selected by simple random sampling technique. The data was collected with a pre tested questionnaire from house to house survey from june 2014 to November 2014 in a rural area. Anthropometric measurements were taken for all selected children after getting consent from the mother. Data entry and analysis were done by using SPSS 15.0 software. Prevalence of under nutrition and 95% Confidence Interval (CI) were calculated. The association between risk factors and under nutrition was estimated by Odds ratio. Percentages and P values were also calculated.

Results:
This study was done among 385 under 5 children. Among the selected children 50.7% were males and 49.3% were females. The majority of the study subjects were in the age group 25-36 months (27.1%) followed by 13-24 months (23.4%). The least proportion of them were in 49-60 months age group. Details given in Table: 1 and Figure No. 1

Birth weight, breast feeding and weaning: Birth weight details were collected from the reliable responders. The mean birth weight was 2.7kg (SD- 0.3) with a minimum of 1.8kg to a maximum of 3.8 kg. About 27.3% of children had low birth weight (<2 kg). Breast feeding and weaning details were also collected and analyzed. The mean duration of breast feeding period was 9 months ranging from 3 to 16 months. Similarly the mean age for initiation of weaning was 7 months and its range was between 5 and 9 months. About 70.7% of selected children were exclusively breastfed.

Prevalence of under nutrition:
Based on IAP classification, the prevalence of under nutrition was 42.9% and that were among the males were 21.1% and 21.8% among females. Majority of under nutrition children were in the age group 25 -36 months which

Volume : 5 | Issue : 10 | October 2015 | ISSN - 2249-555X

were about 11.6 %(45) followed by the age group 13- 24 months (9.9%). The least proportion age group was the 0-12 months age group. Details given in Table: 2. and Figure No. 2

Grading of Malnutrition based on IAP classification was also done. About 22.1% was found to be in grade I Malnutrition and 15.6% in grade II Malnutrition. Also it is 3.9% children in grade III malnutrition and 1.3% in grade IV Malnutrition. Details given in Table: 3. And figure no.3

Under nutrition and associated risk factors:
Detailed history about the risk factors was also included in our study and their P values are noted. Children with birth weight less than 2.5 kg had 2.9 times greater risk of under nutrition and found to be statistically significant. Children who did not have exclusive breastfeeding had 2.7 times higher risk of under nutrition. From our study, it was also found that children with diarrheal diseases and acute respiratory infections were having higher risk of under nutrition which is also highly statistically significant. Children who had partial immunization and those with poor personal hygiene of care takers also had an increased risk of malnutrition and were also statistically significant. Details given in Table: 4.

Discussion:
The present study has shown that the prevalence of under nutrition among under 5 children in rural area is high to the extent of 42.9% stating that under nutrition in under 5 children is an important health priority to prevent childhood morbidities. The 95% CI for the prevalence of under nutrition is 37.9 – 47.8 which is narrow indicating that the present study has significant sample size for estimating the prevalence of under nutrition. The prevalence of under nutrition among females were 21.8% as compared to males 21.1%, but it is not statistically significant (p>0.05). The prevalence of under nutrition was higher in the age group 25 -36 months; this is explained by increased vulnerability of recurrent infections like diarrhea and ARI. Similar findings were observed from various studies by Sharbhada et al in 2009 at Lori (50.46%)[6], Jai Prakash Singh et al in 2013 (53.86%) at Bareilly [7]and HS Joshi et al in 2011 at Bareilly[8].The prevalence of grade I under nutrition was higher (22.1%) compared to grade II (15.6%) and grade III. Similar findings were observed in shreyasvi et al in 2013 at Mangalore [9]. This present study also proved that prevalence of under nutrition was associated with Low birth weight, Poor hygiene, delayed weaning, Diarrhea, ARI and non exclusive breast feeding. Similar findings were also seen in NFHS-3 studies.[10]

Conclusion:
The prevalence of under nutrition can be reduced by proper Antenatal care, exclusive Breast feeding, commencement of weaning at right time, complete immunization and proper personal hygiene.

Table 1: Age and sex distribution

Age in months	Males	Females	Total
0 – 12	35 (9.17%)	32 (8.3%)	67 (17.4%)
13 -24	42 (10.9%)	48 (12.5%)	90 (23.4%)
25 -36	50 (13.0%)	54 (14%)	104 (27.1%)
37 -48	35 (9.1%)	30 (7.8%)	65 (16.9%)
49 -60	33 (8.6%)	26 (6.7%)	59 (15.3%)
TOTAL	**195 (50.7%)**	**190 (49.3%)**	**385 (100%)**

Figure 1: Age and sex distribution

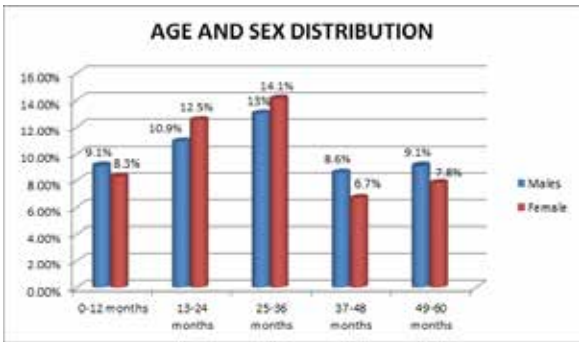

Table 2: Prevalence of under nutrition by age and sex

AGE IN MONTHS	UNDER NUTRITION			NORMAL		
	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL
0 – 12	12	11	23	23	21	44
13 -24	20	18	38	22	30	52
25 -36	21	24	45	29	30	59
37 -48	10	14	24	23	12	35
49 -60	18	17	35	17	13	30
TOTAL	**81**	**84**	**165**	**114**	**106**	**220**

Figure No 2

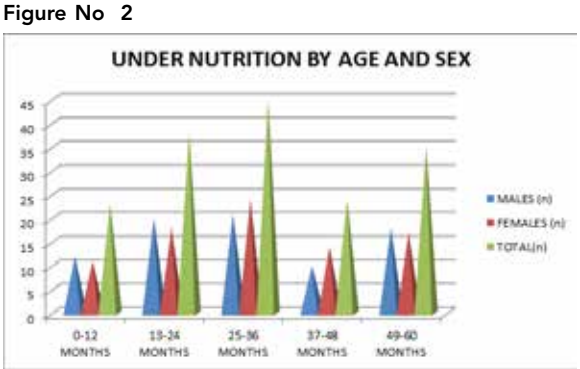

Table 3: Prevalence of under nutrition by IAP classification

IAP classification	MALES		FEMALES		TOTAL	
	n	%	n	%	n	%
Normal	**114**	**29.6**	**106**	**27.5**	**220**	**57.1**
Grade I	43	11.2	42	10.9	85	22.1
Grade II	28	7.3	32	8.3	60	15.6
Grade III	8	2.1	7	1.8	15	3.9
Grade IV	2	0.5	3	0.8	5	1.3
TOTAL	195	50.7	190	49.3	385	100

Volume : 5 | Issue : 10 | October 2015 | ISSN - 2249-555X

Figure No.3

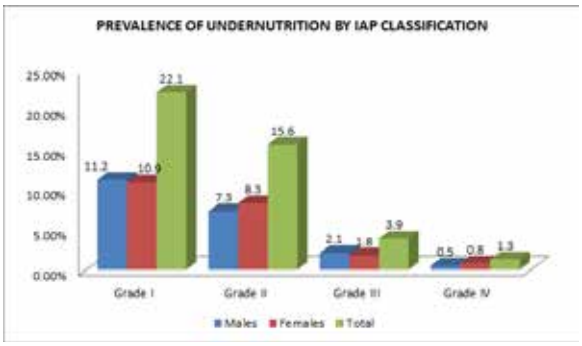

Table 4: Association between under nutrition and risk factors:

yes		Under Nutrition		Odds Ratio	95% CI	'P' value
		no				
Birth Weight	< 2.5 kg	65	40	2.9	1.8 to 4.7	< 0.001
	> 2.5 kg	100	180			
Breast feeding	Non Exclusive	68	45	2.7	1.7 to 4.2	< 0.001
	Exclusive	97	175			
Diarrhea	Present	39	28	2.1	1.2 to 3.6	< 0.001
	Absent	126	192			
ARI	Present	41	27	2.3	1.3 to 4	< 0.001
	Absent	124	193			
Personal Hygiene	unsatisfactory	61	43	2.4	1.5 to 3.8	< 0.001
	satisfactory	104	177			
Immunization	partial	30	10	2.2	1.1 to 4.8	< 0.001
	complete	135	210			
Weaning	Delayed	90	61	3.1	2.0 to 4.8	< 0.001
	On time	75	159			

REFERENCE

1. Govt. of India, National Child Survival And Safe Motherhood Programme. Program interventions, MCH division, Ministry of Health and Family Welfare, New Delhi June 1994 2. Operational guidelines on facility based management of children with severe acute Malnutrition, Ministry of Health and Family Welfare, Govt. of India 2011 3. Mohammed Ali George Fuchs, Tahmeed Ahmed, Bilqis Begum and Badiuzzaman. Management of severe Malnutrition and Diarrhea by International center for Diarrheal Disease research, Bangladesh. Indian Journal of Pediatrics 2001 68(1):45 4. Child Malnutrition in India: Why does it persist? A report by child in need India,available at www.cini.org 5. K.Park. Park's Textbook of preventive and social Medicine 18 th edition,Bhanot Publishers,Jabalpur 2005:406 6. Sharbhada S.Avachat, Vaishali D.Phalke, Deepak B. Phalke. Epidemiological study of Malnutrition (under nutrition) among under 5 children in a section of rural area. Pravara med Rev 2009; 1(2) 20-22 7. Jai Prakash Singh, Shyam BihariGupta, Ved Prakash Shrotriya, Prabhu nath Singh. Study of Nutritional status among under 5 children attending outpatient department at a Primary care rural Hospital, RAreilly (UP). Scholars Journal of Applied Medical Sciences (SJAMS) 2013:1(6) : 769- 773H S Joshi, Mc Joshi, Arun singh, Preeti Joshi. Determinants of Protein energy Malnutrition in 0-6 years children in rural community of Bareilly. Scholars Journal of Applied Medical Sciences 2013:1 (6):769-773 8. HS Joshi, MC Joshi, Preeti Joshi, Nadeem Israr Khan.Determinants of protein energy malnutrition in 0-6 years children in rural community of Bareilly.Indian Journal of preventive social Medicine2011 42 (2) : 155-158 9. Shreyasri Sathyanath M, Rashmi and N. udaya kiran. Prevalence and risk factors of under nutrition among under 5 children in a rural community NUJHS vol 3 no.4 Dec 2013 82- 86 10. NFHS -3.National Family Health Survey available at www.rchiips.org/NFHS/nfhs3.html