MALNUTRITION IN CHILDREN BELOW 6 YEARS IN NALGONDA DISTRICT, TELANGANA

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ABSTRACT

Background: Children are our future and a supremely important asset of nation. By promoting their good health we will be strengthening the development of the family, nation and the world. The present study was conducted to estimate the prevalence of malnutrition in children below 6 years and to examine the influence of socio- demographic factors on children's health.

Methods: A cross sectional study of children below 6 years residing in Field Practice Area of Department of Community Medicine, Kamineni Institute of Medical Sciences Narketpally, Nalgonda district, Telangana. Study duration was from September 2011 to September 2013. House to house survey was done and data was collected using pre-designed pre-tested questionnaire by taking informed consent from childen's parents/ guardians. Data thus obtained was coded and entered in MS Excel and was analysed using SPSS Version 19.

Results: Out of 933, there were 493 females and 440 males. Prevalence of Overall malnutrition for underweight, stunting and wasting was found to be 56.59%, 62.59% and 25.72% respectively.

Conclusion: It is concluded that there is a high prevalence of Malnutrition in the selected area and hence health education and nutritional intervention are needed on urgent basis.

Key Words: Malnutrition, Underweight, Stunting, Wasting.

INTRODUCTION

Children are nature's gift and the fountain of life. They are our future and are a supremely important asset of nation. There is a meaningful truth in saying that "Nation marches on the tiny feet of young children and no nation can flourish without due love and attention paid to its children". [1] By promoting their good health we will be strengthening the development of the family, nation and the world.

Early childhood i.e. first 6 years constitutes the most crucial period in time when the foundations are laid for cognitive, emotional, physical/ motor development & cumulative lifelong learning. There have to be balanced linkages between education, health and nutrition for proper development of child. [2]

World statistics indicate that stunting affects 182 million (33 %) and being underweight affects 150 million (27%) of the world's children ; these are associated with over half of the 10 million annual deaths of children under 5 years .[3] Developing countries account for almost all of this burden , with 70 % of all early child mortality and malnutrition concentrated in Sub – Saharan , Africa and South Asia .[3]

In India, the National family Health Survey(NFHS) 2005-06 included survey of the nutritional status of young children. Both chronic and acute undernutrition were found to be high in all the 7 states for which reports have been received, namely, Hary-

ana, Karnataka, Maharashtra, Orissa, Tamil Nadu, Uttar Pradesh and Goa . [4]

Malnutrition is consequently the most important risk factor for the burden of disease in developing countries. It is the direct cause of about 300000 deaths per year and is indirectly responsible for about half of all deaths in young children. [5]

About 13.12% of the Indian population consists of children between 0-6 years. [6] Each year 27 million children are born in India .Around 10 percent of them do not survive upto 5 years of age·India contributes to 25 per cent of the over 6.9 million under – five deaths occurring worldwide every year.[4]

Very few studies have been conducted on the prevalence of malnutrition in children below 6 years in Nalgonda district and the region. Therefore the present study was undertaken to estimate the prevalence of malnutrition in children of 0–6 years.

OBJECTIVES:

The present study was conducted to estimate the prevalence of malnutrition in children below 6 years and to examine the influence of socio- demographic factors on children's health.

MATERIAL AND METHODS

A community based Cross Sectional study was conducted in Field Practice Area of Department of Community Medicine, Kamineni Institute of Medical Sciences Narketpally, Nalgonda district, Telangana. Duration of the study was from September 2011 to September 2013 [two years] Children who were terminally ill and who had congenital anomalies and inborn errors of metabolism were excluded from the study. Institutional Ethical Committee approval was obtained prior to the initiation of the study.

Sample Size: Taking Prevalence (p) = 30%, allowable error (d) = 10% of P and q=1-p sample size was estimated to be 933. (Sample Size = $4pq/l^2$).

Sampling strategy: Multistage Systematic Sampling was used. In the first stage 5 villages were selected by simple random sampling among the 11 constituent villages of the study area. Villages se-

lected were Cherlapally, Anneparthy, Dandampally, Kanchanapally and Buddaram. In the second stage, sample of the study subjects to be drawn from each village has been calculated by the method of probability proportional to population size. In the third stage, total numbers of houses in each village were counted and systematic sampling method was used by picking up every n^{th} house according to the total number of houses in each of the selected village.

Data thus obtained was coded and entered into Microsoft excel worksheet and analyzed using statistical package for social sciences (SPSS) Version 19. Univariate analysis was done to study the relationship between different variables. Variables were analyzed to find out the association of between the risk factors, namely, age, father's and mother's education, socio-economic status, type of family ,immunization status and exclusive breast feeding and underweight in terms of odd's ratio (OR) and its 95% confidence interval. Statistical significance was assessed using chi-square test. A p-value less than 0.05 was considered significant.

RESULTS

In the present study comprising of 933 children, aged 0-6 years, 493 (52.84%) were females and 440 (47.15 %) were males.

Maximum numbers of children were in the age group of 60 -71 months i.e 21.76% and least number of children was observed in the age group of 48-59 months i.e. 9.11%. (Table – 1)

Table – 1: Age – wise distribution of study population (n= 933)

Age group (months)	Children (n=933) (%)
< 12	187 (20.05)
12 – 23	195 (20.9)
24 – 35	138 (14.79)
36 – 47	125 (13.39)
48 – 59	85 (9.11)
60 – 71	203 (21.76)

Prevalence of Overall malnutrition for underweight, stunting and wasting is found to be 56.59%, 62.59% and 25.72% respectively. (Table – 2)

Table - 2: Distribution of study subjects according to malnutrition (mild and severe forms)

Indices	Normal	Malnourished	Severely Malnourished	0verall Malnourished*
Weight for age (underweight)	405 (43.41)	368 (39.44)	160 (17.15)	528 (56.59)
Height for age (stunting)	349 (37.41)	152 (16.29)	432 (46.3)	584 (62.59)
Weight for Height (wasting)	693 (74.28)	77 (8.25)	163 (17.47)	240 (25.72)

Figures in parenthesis indicate percentage; *malnutrition combining both mild and severe forms

Table 3 a): Age of child and nutritional status according to weight for age (WHO Classification)

Age (months)	Normal (n=405)	Underweight (n=368)	Severe underweight (n=160)	Total (n=933)
<12	53 (13.08)	75 (20.38)	59 (36.875)	187 (20.06)
12-23	83 (20.49)	72 (19.57)	40 (25)	195 (20.9)
24-35	87 (21.48)	36 (9.78)	15 (9.375)	138 (14.79)
36-47	69 (17.05)	44 (11.96)	12 (7.5)	125 (13.39)
48-59	53 (13.09)	22 (5.98)	10 (6.25)	85 (9.11)
60 – 71	60 (14.81)	119 (32.33)	24 (15)	203 (21.76)

X^2 = 108.1, P < 0.0001; Figures in parenthesis indicate percentage

Table 3 b): Age of child and nutrition status according to height for age (WHO Classification)

Age (months)	Normal (n=349)	Underweight (n=152)	Severe Stunting (n=432)	Total (n=933)
<12	76 (21.78)	26 (17.11)	85 (19.68)	187 (20.06)
12-23	72 (20.63)	15 (9.87)	108 (25)	195 (20.9)
24-35	75 (21.49)	34 (22.37)	29 (6.71)	138 (14.79)
36-47	57 (16.33)	15 (9.87)	53 (12.27)	125 (13.39)
48-59	27 (7.74)	12 (7.89)	46 (10.65)	85 (9.11)
60 – 71	42 (12.03)	50 (32.89)	111 (25.69)	203 (21.76)

X^2= 82.158, p < 0.001; Figures in parenthesis indicate percentage

Table 3 c) : Age of the child and nutritional status according to weight for height (WHO Classification)

Age (In months)	Normal (n=693)	Wasting (n=77)	Severe Wasting (n=163)	Total (n=933)
<12	124 (17.89)	10 (12.99)	53 (32.52)	187 (20.06)
12-23	134 (19.34)	25 (32.47)	36 (22.09)	195 (20.9)
24-35	97 (13.99)	16 (20.78)	25 (15.34)	138 (14.79)
36-47	92 (13.28)	11 (14.29)	22 (13.49)	125 (13.39)
48-59	71 (10.25)	5 (6.48)	9 (5.52)	85 (9.11)
60 – 71	175 (25.25)	10 (12.99)	18 (11.04)	203 (21.75)

X^2=43.33, p<0.001; Figures in parenthesis indicate percentage

Table – 4 a): Socio – demographic risk factors of Underweight: Univariate analysis

Variables		Underweight		Odds ratio	P value
		Yes (n=528) (%)	No (n=405) (%)	(95% CI)	
Age (years)	<12	134 (71.7)	53 (28.31)	1.06(0.68- 1.64)	0.792
	12- 23	112 (57.4)	83(42.6)	0.57(0.37- 0.85)	0.007
	24 -35	51 (37)	87(63)	0.25(0.15-0.39)	0.0001
	36- 47	56 (44.8)	69(55.21)	0.34(0.21-0.54)	0.0001
	48-59	32 (37.6)	53(62.4)	0.25(0.15-0.43)	0.0001
	>60			1	
Gender	Female	265 (53.8)	228 (46.2)	0.782(0.603- 1.015)	0.064
	Male	263(59.8)	177 (40.2)	1	
Type of Family	Nuclear	431(58.2)	310(41.8)	1.363(0.990-1.872)	0.057
	Joint	97(50.5)	95(49.5)	1	
Socio- economic status	Lower	111(61.3)	70(38.7)	1.09(0.48-2.5)	0.837
	Upper lower	263(56.6)	202(43.4)	0.89(0.40-1.97)	0.783
	Lower middle	103(53.6)	89(46.4)	0.79(0.35-1.80)	0.583
	Upper middle	35(51.5)	33(48.5)	0.73(0.29-1.79)	0.492
	Upper class	16(59.3)	11(40.7)	1	
Mother's education	Illiterate	182(56.7)	139(43.3)	2.132(1.37-3.30)	0.001
	Primary	70(53.8)	60(46.2)	1.89(1.14-3.17)	0.014
	Secondary	25(43.1)	33(56.9)	1.23(0.65-2.35)	0.523
	Intermediate	37(50.7)	36(49.3)	1.67(0.92-3.03)	0.089
	Graduate	43(38.1)	70(61.9)	1	
Immunization status	Not given	19(82.6)	4(17.4)	3.87(1.31-11.48)	0.009
	Partial	49(65.3)	26(34.7)	1.54(0.94-2.52)	0.087
	Complete	460(55.1)	375(44.9)	1	
Exclusive breast feeding	Not given	42(64.6)	23(35.4)	1.435(0.85-2.43)	0.176
	Given	486(56)	382(44)	1	

Prevalence of underweight was more (32.33%) among children in the age group of 60 – 71 months and about 21% of infants were found to be underweight.

Infants and children in the age group of 12 – 23 months had prevalence of severe underweight 36.87% and 25 % respectively. It was observed that prevalence of stunting is more (32.89%) among children in the age group of 60 – 71 months and about 22.37% among children of age group 24-35 months.

Children in the age group of 60-71 months and infants had prevalence of severe stunting of 25.69% and 19.68% respectively. (Table – 3b) Prevalence of wasting is more (32.47%) among children in the age group of 12-23 months and about 22.37% among children of age group 24-35 months. Infants and children in the age group of 12-23 months and had prevalence of severe wasting of 32.52% and 22.09% respectively. The difference in the age was found to be statistically significant (p < 0.001). (Table – 3c)

As shown in table 4a age group below 12 months (OR=1.06) and nuclear family (OR=1.36) have more risk of underweight. Maternal illiteracy and education upto high school level, no immunization and partial immunization are more at risk for developing underweight (OR= 3.87) (Table –4). It was observed that children who were not exclusively breast fed were more at risk of underweight . (OR=1.76)

DISCUSSION

In the present study prevalence of overall malnutrition for underweight, stunting and wasting is found to be 56.59%, 62.59% and 25.72% respectively.

In a study by G Enakshi and N Sudha (2012), it was found that about 47 % of the children were underweight , 57% were stunted and 25 % were wasted.[3] Seetharam N et al., in their study noted that 49.6% were underweight, 48.4% were stunted and 20.2% were wasted.[7] In another study by Rao et al found that 61.6% of children were underweight, 51.6% were stunted and 32.9% were wasted.[8] Deeksha K et al[9] and Sumedha Joshi & Santosh S Walgankar[10] observed higher prevalence of malnutrition as compared to our study . However B Joseph et al (2002)[11], have found low prevalence of underweight and stunting with the prevalence of underweight, stunting and wasting of 31.2%, 9.4% and 29.2% respectively.

With respect to underweight in the present study it was observed that prevalence of underweight was more (32.33%) among children in the age group of 60 – 71 months and about 21% of infants were found to be underweight. Infants and children in the age group of 12 – 23 months had prevalence of severe underweight 36.87% and 25 % respectively.

Our study findings were in agreement with a study done by Shreyaswi et al (2013).[12] In contrary , a study conducted by Chakraborty S (2006)[13], in a rural population of Jhansi district (U.P,) the prevalence of Malnutrition was found to be significantly higher in the age group of 1-3yrs (80.9%).

A study in rural areas of Allahabad by Harishankar et al(2004)[14], Maximum prevalence of malnutrition(mild and severe forms together) was recorded 33 (32.02%) in age group of 13-24 months followed by 43 (28.09%) in the age group 37-72 months, 18 (24.31%) in age group of 0-12 months and 23 (21.68%) in age group of 25-36 months.

In the present study it was observed that prevalence of stunting is more (32.89%) among children in the age group of 60 – 71 months and about 22.37% among children of age group 24-35 months . Children in the age group of 60-71 months and infants had prevalence of severe stunting of 25.69% and 19.68% respectively. The difference in the age was found to be statistically significant (p < 0.001).

A study by Mahapatra A et al[15] revealed prevalence of stunting was high (54.4%) among children of 37-48 months. With respect to wasting it was observed that prevalence of wasting was more (32.47%) among children in the age group of 12-23 months and about 22.37% among children of age group 24-35 months .

Infants and children in the age group of 12-23 months and had prevalence of severe wasting of 32.52% and 22.09% respectively . The difference in the age was found to be statistically significant (p < 0.001).

Our study was in agreement with a study by Mahapatra A et al[15] who revealed prevalence of wasting was high (54.4%) among children of 12-24 months of age.

CONCLUSION

Prevalence of Malnutrition in the present study was found to be high . Age group below 12 months and nuclear family had a strong association with underweight. Maternal illiteracy and education upto high school level, no immunization and partial immunization had a strong association with underweight.

It suggests that there is a need for health and nutritional education among the parents and stress has to be laid on effective implementation of existing

nutritional programmes for children like the Integrated Child Development Scheme(ICDS).

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