EPIDEMIOLOGY OF UNDER-NUTRITION IN CHILDREN BETWEEN 0-5 YEARS FROM RURAL AREAS OF DEHRADUN

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ABSTRACT:

Background : *Under nutrition is a major problem in India. This is a study conducted in rural catchment areas of Department of Community Medicine, SGRRMC, Dehradun to asses the same.*

Objectives : *To find out prevalence of under nutrition in children in the age group of 0-5 years and also to study its epidemiological correlates.*

Methods : *All registered children of RHTC Mothrowala during October to December 2009 were studied. Detailed histories were taken & growth charting was done using growth charts provided by government of India (as recommended by Indian Academy of Pediatricians).*

Results : *41.2% children suffered from under nutrition. Under nutrition was significantly correlated with age, socio-economic status, nuclear families, mother's education, immunization & feeding practices.*

Conclusions : *Solution to the problem lies in economic upliftment, women's education, good health services and preservation of joint family system.*

5-8 keywords: *under nutrition, colostrum, exclusive breast feeding, weaning, immunization.*

Introduction :

Under nutrition is an important cause of childhood morbidity and mortality and leads to growth impairment. The current concept of under nutrition has been mentioned as Protein Energy Malnutrition (1) and is widely prevalent in India. Half of the world's malnourished children reside in three South Asian Countries: India, Bangladesh and Pakistan (2). With above background, this study was undertaken in catchment areas of newly established SGRRMC, Dehradun to obtain baseline data for further intervention.Material & methods.

This cross sectional study was carried out in rural field practice areas of Department of Community Medicine, SGRRMC, Dehradun from Oct to Dec 2009. All 294 children between 0-5 years in catchment area of Rural Health Centre, Mothrowala were included in the study except those not available/ away from home due to any reason. Detailed histories were taken on a predesigned structured questionnaire, anthropometric measurements were taken and weight for age recorded in standard growth charts. The data was analyzed using SPSS 10.0 software. Statistical methods used were percentages and Chi Square Test. Significance level was fixed at 95% confidence interval (p=0.05).

Results :

1. 41.2% children suffered from under nutrition of varying degrees.

2. Epidemiological factors related to under nutrition:

    a. 47.6% undernourished children were in age group of 37-60 months, 40.5% in 13-36 months and only 11.9% in 0-12 months.

    b. 38.3% males had under nutrition as compared to 44.9% females.

    c. 55.0% mothers were educated below matriculation had underweight children as compared to 28.2% mothers educated till matriculation and above.

    d. 47.9% children from nuclear families were under nourished as compared to 31.4% from joint families.·

    e. 61.5% children from low socio-economic classes were under nourished as compared to 37.2% and 29.4% from middle and upper classes respectively.

    f. Home deliveries were associated with higher percentage of subsequent under nutrition in children (50.8%) as compared to institutional deliveries (36.5%) as were interventional deliveries in hospitals (62.1%) as compared to normal deliveries (37.7%).

3. Prevalence of various child feeding practices in the community:

    a. Practice of giving colostrum - 71.1%

    b. Practice of giving pre lacteal feeds (PLF) 28.4%

    c. Practice of Exclusive breast feeding (EBF) 28.9%

    d. Weaning at 6 months 28.9%

    e. Initiation of breast feeding within 1 hour of birth 41.0%

    f. Initiation of breast feeding within 24 hours of birth 65.7%

4. Epidemiologic correlations with child feeding practices:

    a. 73.3% children between 0-5 years who did not

receive colostrum were under nourished as compared to 37.9% of those who received colostrum.

b. 46.6% children who were given PLF after birth were under nourished as compared to 38.7% children who were not given PLF.

c. 44.8% children who did not receive EBF were under nourished as compared to 32.2% of those who received EBF.

d. No significant correlation was observed between under nutrition and age of weaning in current study.

e. 64.7% children who were breast fed after 24 hours of birth were under nourished as compared to 34.3% children whose breast feeding was started within 24 hours of birth.

5. 39.4% of completely immunized children were under nourished as compared to 62.5% of incompletely immunized children under study.Discussion2

Prevalence of low weight for age in Dehradun is less than national average of 45.9% (3) and 89.7% reported from neighboring Garhwal Himalayas (4).

Age correlation conforms to findings of Mittal, Singh & Ahluwalia (5) where peak prevalence of under nutrition was in 36-47 month age group indicating renewed focus on toddler nutrition.

No gender bias in the prevalence of under nutrition in children was also noticed in a NNMB survey and a rapid nutritional status assessment carried out by SK Ray & colleagues (6).

Likewise, other authors have also noticed a significant correlation of under nutrition in children with mother's education (5, 6).

Unlike present findings, a significant positive relation with increasing family size is reported (6), particularly in relation to birth order of the child. This can be explained as majority of families were joint families in the study area where large family does not mean high birth order of child.

A positive correlation of under nutrition with nuclear family type and low socio economic class has also been reported by other authors (7).

Low birth weight is associated with growth failure in later ages (8, 9). Contrary findings in this study can be suggestive of the fact that catch up growth is occurring with the help good health care services. Further studies can be planned to assess the same.

Good ante natal care and subsequent institutional delivery decrease incidence of low birth weight. Decision about place of delivery is influenced by socio economic factors. Hospital deliveries increase sharply with socio-economic status of the family. Home deliveries are assisted by untrained personnel. These facts justify the finding of the current work that place and type of delivery significantly affect nutritional status of children between 0-5 years of age.

Prevalence of recommended infant feeding practices in India varies in different regions. As per Ramji, EBF rate in India at 6 months is about 46%. Contrarily, EBF was not done in as many as 84.1% infants of well to do families of Uttar Pradesh while 47.3% infants of poor families were not weaned off breast milk even beyond 6 months of age. Delayed initiation of breast feeding, deprivation from colostrum and improper weaning are significant risk factors for under nutrition. Adequate complementary feeding practices go a long way in prevention of under nutrition (10).

There is a significant correlation between incomplete immunization and under nutrition in children (6). Conclusion Low weight for age is still widespread in the study area. Although social and economic reform is widely occurring we can focus our efforts on women's education and improving child feeding practices of the community. Interventions on increasing awareness about benefits of giving colostrum, exclusive breast feeding and adequate weaning foods are being planned. Children in age group of 3-5 years have come up as a vulnerable subgroup, so mothers need to focus on toddler nutrition as well. Maintenance of good health care services is the must to help mothers with low birth weight children cope without letting the child's growth falter.

Table 1

Variable	Groups	Normal Children	Under Nourished Children	Chi Square	D.F.	P Value
Age (in months)	0-12	42 (35.0%)	10 (11.9%)	7.4	4	<0.05
	13-24	20 (16.7%)	17 (20.2%)			
	25-36	27(22.5%)	17 (20.2%)			
	37-48	22 (18.3%)	24 (28.6%)			
	49-60	9 (7.5%)	16 (19.0%)			
	Total	120(100.0%)	84(100.0%)			

Table Condt.

Sex	Male	71(61.7%)	44(38.3%)	0.9	1	>0.05
	Female	49(55.1%)	40(44.9%)			
	Total	120(100.0%)	84(100.0%)			
Social Class	Lower	3 (2.5%)	0	8.63	2	<0.01
	Upper lower	12 (10.0%)	24 (28.6)			
	Lower Middle	46 (39.3%)	31 (36.9)			
	Upper Middle	47 (79.7%)	24 (28.6)			
	Upper	12 (20.3%)	5 (5.9)			
	Total	120 (100.0%)	84 (100.0)			
Family Size	3 to 5	72 (54.5%)	60 (45.5%)	0.5	2	>0.05
	6 to 9	42 (66.7%)	21 (33.3%)			
	10 and Above	6 (66.7%)	3 (33.3%)			
	Total	120 (100.0%)	84 (100.0%)			
Mother's Education	Illiterate	24 (40.0%)	36 (60.0%)	7.85	2	<0.01
	Below matric	22 (53.7%)	19 (46.3%)			
	Matric and Above	74 (71.8%)	29 (28.1%)			
	Total	120 (100.0%)	84 (100.0%)			
Initiation of breast feeding	Within 1 hour	50 (59.5%)	34 (40.5%)	6.3	3	<0.05
	Within 24 hours	38 (76.0%)	12 (24.0%)			
	> 24 hours	12 (35.3%)	22 (64.7%)			
	Not known	20 (55.6%)	16 (44.4%)			
	Total	120 (100.0%)	84 (100.0%)			
Colostrum	Yes	90 (62.1%)	55 (37.9%)	5.9	2	<0.05
	No	8 (26.7%)	22 (73.3%)			
	Not Known	22 (56.4)	17 (43.6%)			
	Total	120 (100.0%)	84 (100.0%)			
EBF	Yes	40 (67.8%)	19 (32.2%)	2.8	1	<0.01
	No	80 (55.2%)	65 (44.8%)			
	Total	120 (100.0%)	84 (100.0%)			
Age of Weaning	6 months	51 (86.4%)	8 (13.6%)	26.1	1	>0.05
	Not 6 months	69 (47.2%)	76 (52.4%)			
	Total	120 (100.0%)	84 (100.0%)			

Table 2

Variable	Groups	Normal Children	Under Nourished Children	Chi Square	D.F.	P Value
Religion	Hindu	113 (94.2%)	78 (92.8%)	0.34	1	>0.05
	Others	7 (5.8%)	6 (7.2%)			
	Total	120(100.0%)	84(100.0%)			
Family Type	Nuclear	61(50.8%)	52 (61.9%)	5.87	1	<0.01
	Joint	59 (49.2%)	32 (38.1%)			
	Total	120(100.0%)	84(100.0%)			
Delivery Place	Home	33 (27.5%)	34 (40.5%)	3.77	1	<0.05
	Institutional	87 (72.5%)	50 (59.5%)			
	Total	120(100.0%)	84(100.0%)			
Delivery Type	Normal	109 (90.8%)	18 (21.4%)	6.09	1	<0.01
	Interventional	11 (9.2%)	66 (78.6%)			
	Total	120(100.0%)	84(100.0%)			
Birth Weight	Not Known	54 (45.0%)	59 (70.2%)	22.16	2	>0.05
	<2.5 kg	13 (10.8%)	14 (16.7%)			
	>2.5 kg	53 (44.2%)	11 (13.1%)			
	Total	120(100.0%)	84(100.0%)			
PLF	Not Known	7 (5.5%)	6 (7.1%)	1.08	2	<0.01
	Not given	31 (25.8%)	27 (32.1%)			
	Given	82 (68.3%)	51 (60.7%)			
	Total	120(100.0%)	84(100.0%)			
Immunization Status	Complete	114 (95.0%)	74 (88.1%)	3.26	1	<0.05
	Not Complete	6 (5.0%)	10 (11.9%)			
	Total	120(100.0%)	84(100.0%)			

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