

Nutritional Status of Children (0-24 Months) In Jammu Kashmir and Ladakh Regions

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Abstract- This paper discusses the results of an analysis on community based cross sectional study of infant growth faltering and feeding practices in three regions of Jammu Kashmir and Ladakh for which data has been collected during 2004-2006 and compiled in March 2007. Results indicate a statistically significant positive association between malnutrition and feeding practices. Feeding practices in all the three regions studied were not as per internationally accepted recommendations. Around 66% of mothers gave pre-lacteal feeds, most common being sugar water, honey, plain water, artificial milk and Jaggery. Pre-lacteal feeding was common in Jammu and Kashmir regions but was not very common in Ladakh. In all the three regions, as the age of the studied children advanced from 0 to 2 years, the prevalence rate of malnutrition exhibited a parallel increase. This pattern was observed in higher frequency among infants from middle and lower income groups. Chronic malnutrition evidenced by stunting with insignificant inter-regional differences ($P > 0.01$) was observed in 14.1%, 17.2% and 16.8% of the children in Jammu, Kashmir and Ladakh.

Current malnutrition was more prominent in Kashmir as 29.3% children were underweight as against 16.2% in Jammu and 15.8% in Ladakh ($p < 0.01$). Acute malnutrition also showed significant inter-regional difference ($P < 0.05$). Highest frequency of wasted children was recorded in Kashmir as 14.4%, followed by 12.1% from Jammu while in Ladakh only 6.9% of children were found to be wasted.

I. INTRODUCTION

Nutrition is the corner stone of socio economic development. Growth faltering and malnutrition are highly prevalent in most south Asian countries. Among the serious consequences of malnutrition are increased risks of morbidity and mortality in children as well as deficits in physical stature and lowered cognitive measures. Childhood malnutrition in poor households has been well documented in India, with the highest rates observed in those aged 12-23 months. Country wide National Family Health Survey II (NFHSII) data show mean underweight prevalence increases from 11.9% among infants fewer than six months of age to 58.4% at 12-23 months of age

Malnutrition and infections are the most common causes of morbidity and deaths in infants. One leads to the other and both are intimately associated with poverty and poor education. It is possible to improve infant nutrition by two simple, affordable strategies—promotion of exclusive breastfeeding till the child completes six months of age and after that age, introduction of

appropriate complementary feeds in addition to, and not as a replacement of breastfeeding. Recent research on accelerating child survival published in the Lancet (2003) clearly establishes that universal exclusive breastfeeding for first 6 months is the single most effective child survival intervention. It reduces under 5 mortality by 13 percent.

II. METHODOLOGY

For the present study, random sampling was used. Sampling was done with probability proportional to size (PPS). Based on the earlier studies (Gopujkar et al 1984). The infant population was assumed to be four percent of the population as per national census. It was proposed that at-least one percent sample of the infants in the population would be drawn from each center. Out of fourteen districts of Jammu and Kashmir only three districts were selected i.e. Srinagar Jammu and Leh. In this way 680 children from Jammu, 512 children from Kashmir and 101 children from Ladakh regions were selected.

III. ASSESSMENT OF NUTRITIONAL STATUS

Parameters assessed during the study are as follows:-

i. Weight: - In case of very young infants who were not able to stand, pan type baby weighing scale (Docbel Braun) were used. For weighing older children, an adult platform weighing scale (also known as a personal weighing scale) was used, as it was portable and convenient to use. The scale was adjusted to zero before taking measurement. The subjects were asked to have minimum clothing and were asked to stand on the platform of the scale, without touching anything and looking straight. The weight was recorded to the nearest 0.5kg.

ii. Height: - Children below the age of 2 years, who could not stand properly recumbent length (crown-heel length), were measured on wooden infant meter. The length of the infant was measured by placing the infant supine along the scale, with the head held firmly in position. The legs were straightened, keeping feet at right angles to legs, toes upward a free foot board was brought into firm contact with the child's heels. Then the length was measured in centimeters. For older children, subject was made to stand erect looking straight on a leveled surface, without shoes, with heels together and toes apart. His heels, buttocks, shoulder and back of the head all touched the wall. The head was held comfortably erect and the arms hanged loosely by the side. A smooth thin ruler was held on top of the head in the center,

crushing the hair at a right angle to the scale and the height read from the lower edge of the ruler to the nearest 0.5cm. (Jelliffe DB 1966).

Children were categorized as malnourished or normal by placing their measurements on the three most commonly used anthropometric indices viz weight-for-height, height-for-age and weight-for-age. The calculation of the three indices of child malnutrition involved comparison with an international reference population as recommended by the World Health Organization (Dibley etal 1987a) (Dibley etal 1987 b).A Z-score cut-off point of <-2 SD was used to classify low weight-for-age, low height-

for-age and low weight-for-height to define malnutrition. ANTHRO software (version 1.02) package developed by WHO/ CDC was used to calculate-2SD scores from the Weight and height data of the children. Statistical analysis was done through SPSS-10 software package for social sciences

IV. RESULTS

TABLE 1: NUTRITIONAL STATUS OF CHILDREN

Indices of Nutritional					
Status		Jammu	Kashmir	Ladakh	Total
Weight for Age	Under Weight	110 (16.2)	150 (29.3)	16 (15.8)	276 (21.3)
	Normal	570 (83.8)	362 (70.7)	85 (84.2)	1017 (78.7)
		31.900 (.000)**			
Height for Age	Stunted	96 (14.1)	88 (17.2)	17 (16.8)	201 (15.5)
	Normal	584 (85.9)	424 (82.8)	84 (83.2)	1092 (84.5)
		2.233 (.327)ns			
Weight for Height	Wasted	82 (12.1)	89 (14.4)	7 (6.9)	178 (13.8)
	Normal	598 (87.9)	423 (82.6)	94 (93.1)	1115 (86.2)
		11.278 (.004)*			
General Illness	Severe	170 (25.0)	150 (29.0)	25 (25.0)	345 (26.6)
	Mild	71 (10.0)	65 (13.0)	10 (10.0)	146 (11.3)
	Normal	439 (65.0)	297 (58.0)	66 (65.0)	802 (62.0)
		5.892 (.207)ns			
Feeding related illness	GIT	73 (11.0)	58 (11.0)	13 (13.0)	144 (11.1)
	Multiple	67	75 (15.0)	15 (15.0)	157 (12.1)

		(10.0)			
	Normal	540 (79.0)	379 (74.0)	73 (72.0)	992 (76.7)
		7.233 (.124)ns			

Note: Figures in

parenthesis represents percentage

** Association is found highly significant ($p < 0.01$); * significant ($p < 0.05$); ns: Non-significant

Highest morbidity in the form of general illness, fever, cold, and cough was observed among Kashmiri children followed by almost equal number of children in Jammu & Ladakh. Feeding related illnesses were present more among Ladakhi children. However inter regional differences were insignificant ($p > 0.01$). Weight for age which is a composite measure that takes into account both chronic and acute under nutrition shows highest percentage of underweight children in Kashmir as 29.3% while almost equal number of children in Ladakh and Jammu 15.8% and 16.2% were underweight

Least percentage of wasted children, a sign of acute short term under nutrition were found in Ladakh (6.9%) while in Jammu there were (12.1%) and in Kashmir (14.4%) children were found to be wasted.

The problem of chronic malnutrition was found to be highest in Kashmir as (17.2%) followed closely by Ladakh (16.8%) and in Jammu (14.1%) of children was found to be stunted. The problem of stunting did not show any significant difference between three regions ($p > 0.01$).

TABLE 2

Nutritional Status	Present Study	NFHS-2 J&K	All India Levels
Stunting	15.5%	39%	47%
Wasting	13.8%	12%	16%
Under Weight	21.3%	35%	46%

UNICEF (2000) shows the prevalence of nutritional stunting among under age five children in India as 47% which is among the highest in world, wasting as 16% and underweight problem as 46%. NFHS-2 Jammu and Kashmir reported 35% as underweight, 12% as wasted and 39% stunted in the age group less than three years.

TABLE 3: INFLUENCE OF FEEDING PRACTICES ON WEIGHT OF INFANTS

Feeding Practices		Under weight	Normal
Type of first feed given after birth	Prelacteal feed	181(21.2)	672(78.8)ns
	Breast milk	95(21.6)	345(78.4)
Exclusive breast **	0-6months	72(17.3)	345(82.7)
	>=6 months	72(32.7)	148(67.3)
Colostrums **	Fed	197(19.2)	831(80.8)
	Not fed	79(29.8)	186(70.2)
Initiation of top milk ns	0-3months	62(21.0)	233(70.0)
	4-6 months	20(19.8)	81(80.2)

	>6months	73(24.5)	225(75.5)
Type of top milk ns	Commercial	62(22.8)	210(77.2)
	Animal	93(22.0)	329(78.0)
Weaning **	Early	23(15.4)	126(84.6)
	Timely	34(21.3)	126(78.8)
	Late	71(34.9)	137(65.9)
Type of first semi solid ns	Commercial	40(18.8)	173(81.2)
	Home made	88(28.9)	216(71.1)

** Association is found highly significant ($p < 0.01$); * Significant ($p < 0.05$); ns Non-significant

Less underweight problems was found when children were exclusively breast fed for 0-6 months but problems was more when breast feeding was extended exclusively for complete 6 months or more than 6 months. Underweight problem was more when colostrum was not fed. Higher percentages of those children were found to be underweight who were fed animal milk. Highest percentage of underweight children was found when initiation of Semi-solids was delayed. Percentage of underweight was more in children who were given home cereal and other foods than those given commercial cereal as first semi-solid food.

TABLE 4: INFLUENCE OF FEEDING PRACTICES ON WEIGHT FOR HEIGHT

Feeding practices		Wasted	Normal
Type of first feed given after birth	Prelacteal feed	112(13.1)	741(86.9)
	Breast milk	66(15.0)	374(85.0)
Exclusive breast **	0-6months	43(10.3)	374(89.7)
	> =6 months	56(25.5)	164(74.5)
Colostrums **	fed	122(11.9)	906(88.1)
	Not fed	56(21.1)	209(78.9)
Initiation of top milk Ns	0-3months	48(16.3)	247(83.7)
	4-6 months	09(8.9)	92(91.1)
	>6months	47(15.8)	251(84.2)
Type of top milk Ns	commercial	41(15.1)	231(84.9)
	animal	63(14.9)	359(85.1)
Weaning **	early	11(07.4)	138(92.6)
	timely	15(9.4)	145(90.6)
	late	54(26.0)	154(74.0)
Type of first semi solid ns	commercial	26(12.2)	187(87.8)
	Home made	54(17.8)	250(82.2)

** Association is found highly significant ($p < 0.01$); * Significant ($p < 0.05$); ns Non-significant

Exclusive breast feeding colostrum feeding & time of weaning were found to have significant influence on Wasting. Pre lacteal feeding was not found to have influence on wasting.

TABLE 5: INFLUENCE OF FEEDING PRACTICES ON HEIGHT FOR AGE

Feeding practices		Stunted	Normal
Type of first feed given after birth Ns	Prelacteal feed	122(14.3)	731(85.7)
	Breast milk	79(18.0)	361(82.0)
Exclusive breast **	0-6months	39(09.4)	378(90.6)
	> =6 months	66(30.0)	154(70.0)
Colostrums Ns	Fed	154(15.0)	874(85.0)
	Not fed	47(17.7)	218(82.3)
Initiation of top milk Ns	0-3months	46(15.6)	249(84.4)
	4-6 months	07(06.9)	94(93.1)
	>6months	63(21.1)	235(78.9)
Type of top milk Ns	Commercial	45(16.5)	227(83.5)
	Animal	71(16.8)	351(83.2)
Weaning **	Early	22(14.8)	127(85.2)
	Timely	24(15.0)	136(85.0)
	Late	65(31.3)	143(68.0)
Type of first semi solid*	Commercial	32(15.0)	181(65.0)
	Home made	79(26.0)	225(74.0)

***Association is found highly significant (p<0.01) ; * Significant (p<0.05) ns Non-significant*

Lesser percentage of stunting was observed when Children were exclusively breast fed at <6 months. Stunting was observed in all the three regions of Jammu Kashmir and Ladakh among children in whom top milk was introduced before 6 months. Stunting was observed more in children who were given home cereal as compared to those children given commercial cereal as first semi-solid food in all the three regions.

V. DISCUSSION

Effect of undernourishment was manifest in children both in acute and chronic terms. This is in concordance with UNICEF (2000), showing the prevalence of nutritional stunting among under age five children in India as 52.3% which is among the highest in world. NFHS-2 Jammu and Kashmir reported 34.5%, 38.8% and 11.8% as underweight, stunted and wasted in the age group less than three years. The problem of underweight and wasting between regions showed significant difference. While the problem of stunting did not show any significant difference between three regions.

Although In Kashmir slightly greater evidence of morbidity (general illness) was found but difference between regions was insignificant statistically. Our data with respect to the nature of illness have the limitation that this information was entirely based on the mother's response. An infant may be expected to suffer several such episodes during infancy. The morbidity factor would thus be major determinant of the nutritional and growth status of infants. NFHS—2 show under weight and wasting more common in Jammu region, stunting more common in the Kashmir region. The present study also shows stunting more in Kashmir than in Jammu and Ladakh regions. In the present study, 21.3% children were underweight in the pooled sample, which is lower than figures given in NFHS—2 Jammu and Kashmir which shows problem as 35%. Lower percentage in the present study can be attributed to the fact that children were only 0-2 years while in NFHS study age group was 0-3 years and further in the present study only six tehsils were selected. Least percentage of malnutrition was observed before 6 months which can be attributed to exclusive breast feeding at this stage as 56%, 52.6% and 91.8% respectively in the three regions. Least percentage of exclusively breastfed infants are from Kashmir which can contribute to a greater malnourished state of Kashmir children. A better nutritional status of Ladakhi children can be attributed to exclusive breastfeeding at 0-3 months among 91.8% infants. The association between duration of breast feeding and nutritional status was studied by Victoria et al (1984) in a population based sample of 802 children aged 12 to 35.9 months. The prevalence of malnutrition (low weight for age, length for age, and weight for length) was smallest in those of children breast-fed for 3 to 6 months, but after this age nutritional status appeared to be worse in those breast fed for longer. Children still being breast-fed, at the time of the survey, presented a significantly higher prevalence of low weight for length than those who had been totally weaned and those receiving breast plus bottle-feeding presented intermediate levels.

More malnutrition in Kashmir children can also be attributed to the fact that conflict situation since 1989 in J&K has brought unprecedented sufferings to people. The conflict has disturbed the social fabric, damaged the economy and disturbed the source of livelihood of thousands of families. Children and women of

the Kashmir valley have gone through a grueling trauma over recent times because of armed conflict situation. The wider use of commercial foods by mothers irrespective of socio-economic status, education and occupation can be attributed to the fact that these foods do not need cooking and this implies considerable saving on fuel and time, and can therefore be readily offered over and above the family food or breast milk. An important consideration against the use of these foods is their high cost. If these foods are in fact used in the amounts recommended, a substantial part of the income of poor and low income families would go to the purchase of these foods. Therefore low-income families buy small quantities and stretch them through over dilution. This practice is abhor able and need serious deprecation.

If we look at morbidity, more percentage of Kashmir children was having general illness than other two regions. Even if exclusive breastfeeding was prolonged beyond 6 months children could not escape repeated infections episodes. Growth retardation may thus be a manifestation of poor environmental sanitation with result to feeding. An increasing percentage of malnourished children with increasing age directly points out the inadequate intake of child in respect of growing requirements of the body. The role of appropriate feeding practices therefore needs to be strongly emphasized.

VI. CONCLUSION

Malnutrition among infants is not only a cause of ill health or lack of access to infant milk substitutes, but it is the result of inappropriate breast feeding practices and lack of basic education about breastfeeding. Need of the hour is development of training programmes at all levels to disseminate scientifically proven facts regarding advantages and essentiality of breastfeeding with particular emphasis on exclusive breastfeeding for first 6 months, Introduction of such supplements as fresh cow's milk and a judicious combination of food items of the habitual family diets with continuing breastfeeding as long as possible. Regulating the use of commercial infant food and promotion of better hygiene and cleanliness in the handling and feeding of foods of infant. Thus the utilization of the available resources with sufficient awareness and discretions is the need to be addressed

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