

**NUTRITIONAL STATUS AND FEEDING PRACTICES
IN UNDER-3 YEARS OLD CHILDREN IN A RURAL
COMMUNITY IN LUDHIANA, PUNJAB**

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ABSTRACT

A study of 182 under 3 year old children village of district Ludhiana, Punjab. 26.9 per cent of them to be malnourished, one third of the malnourished ones suffering from moderate (PEM) protein energy malnutrition. The highest proportion of the malnourished ones were in the second year of life, while the highest proportion of the moderately malnourished ones were in the latter half of the third year. The female child, increasing birth order and the number of siblings, educational level of the head of the family and more particularly that of the mother, poverty, low income family occupations, initiation of breast feeding later than the first day of birth, exclusive breast feeding for periods >4 or >9 months of age, attainment of body weight <6 Kg at 6 months of age and the use of the feeding bottle in those who were given top milk were the factors found to be associated with childhood malnutrition and/or the more severe form of PEM to a greater or lesser degree. The majority of (57.7%) mother's breast fed their children exclusively for 4-6 months. However, exclusive breast feeding till 7-9 months of age, which was practised in about 23 per cent children, was observed to be associated with lowest levels of PEM. Both protein and calorie intakes were deficient in the under -6 months old. All the under -6 months old were receiving breast milk, 69.7 per cent of them being exclusively breast fed. While recognising the role of demographic, socio-economic, cultural and environmental factors in the aetiology of childhood malnutrition, and the need for a multi-pronged attack to combat it; exclusive breast feeding for 7-9 months of age is suggested, with the baby being put to the breast from the day of birth, and adequate food

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Intake subsequently, with emphasis on bridging the calorie-gap rather than an emphasis on a "high protein diet".

One in every six children in the world is an Indian, the children of India thus comprising nearly 16 per cent of the world's children. The twentieth century is expected to close with the number of children in India almost certainly exceeding the total population of 279 million recorded in the 1931 Census. Forty per cent of all deaths in India occur among children under 5 years of age, of which malnutrition is a major cause. Every month 1,00,000 children die from its effects. An even larger number of children die of infectious diseases, their poor diet having made them susceptible to infection and thereby vulnerable to death.

Data from the National Nutrition Monitoring Bureau (NNMB) indicates that 85 per cent of 1-5 years old children were suffering from varying degrees of malnutrition in 1981². Surveys among pre-school children from different parts of the country have shown that the diet of more than 90 per cent of the poor economic group is deficient in calories, while the diet of 30 per cent is deficient in protein.

The post-independence growth in food production in India has kept pace with the increase in population, especially after the introduction of the new agricultural technology in the 1960s. More than half of the country's Central Pool of grain has been contributed by Punjab, the state which gave India the "green revolution". The presence of childhood malnutrition in rural Punjab, therefore, showed that inspite of increased affluence and certainly more than adequate food in the state children are not receiving adequate nutrition. The levels of under-five malnutrition in rural Punjab continue to be unacceptably high. The situation demands closer scrutiny.

The Rural Health Centre of the Department of Social and Preventive Medicine of the Christian Medical College, Ludhiana, is situated about 12 kilometers from base in the village of Lalton Kalan, which had a total population of 4672, with 331 under-3 years old children as on 31.3.1992 according to the Centre records. The Centre maintains family folders for each family in the village. A composite record based on these family folders has been maintained in a Master Register of the village. The records, *i.e.* the family folders and Master Register have been updated through regular home visits by the field staff and also medical interns supervised by the resident medical officer of the Centre and supervisory staff from the base department.

STUDY AIMS

The present investigation was undertaken to study the nutritional status and feeding practices in under -3 years old children in Lalton Kalan village, in an endeavour to find out ways and means to improve their nutritional status.

METHOD

The households for the study were selected randomly from the Master Register, from amongst households having under -3 years old children. All the under -3 children in the selected households were included in the study. It was decided to sample 50 per cent of the 331 under -3 children. Actual number surveyed was 182.

The children were weighed in their homes using a hanging dial-type Salter spring scale and a standard pretested questionnaire administered to their mothers to obtain information regarding education of the head of the family and of the mother by number of years of schooling, main family occupation, monthly family income, the birth order of the child, the number of siblings, and the details of nutritional intake itemwise, one-day recall in the case of supplements).

For those over 6 months old, the weight at 6 months was obtained from the Road-to-Health (RTH) card maintained for each under 5 children in the Family Folder. The RTH graph on the card in use was similar to the one designed and supplied by the Voluntary Health Association of India (VHAI), New Delhi, and commonly used in the country's health services. It has been based on the standards derived for Indian children by the Indian Academy of Paediatrics of the Indian Council of Medical Research, where the top line (100%) corresponds to the 50th percentile of the Harvard Standard.

For those receiving breast feeds (with or without supplements), the daily intake of breast milk was taken to be according to the studies done in India over a 24 hour period at various ages by the infant test weighing method, in the WHO Collaborative Study on Breast feeding. The energy and protein content of breast milk were taken as 70 kcals/100 gms and 1.2 gms/100 gms respectively.

The nutritive value (protein and calories) derived from the diet per day was calculated from the standard reference entitled "Nutritive Value of Indian Foods" published by the National Institute of Nutrition, Hyderabad.

The expected weight-for-age for the child was interpolated from the top line of the RTH chart, Actual weights-for-age between 79-70 per cent, 69-60 per cent and <60 per cent of the expected weights-for-age were taken to denote mild,

moderate and severe PEM (Protein Energy Malnutrition) respectively, while a weight deficit of upto 20 per cent was taken as normal.

The recommended daily allowance (RDA) of energy and protein were those recommended by the Indian Council of Medical Research.

The data was analysed on epidemiologic computer software called Epi-Info Version 5.00.

RESULTS

The age-wise nutritional status of the under -3 years old children studied, of whom on the whole 26.9 per cent were malnourished as has been shown in Table 1. 9.1 per cent of the under 6 months old, 21.6 per cent of the 6-11 months old, 40.0 per cent of the 12-17 months old, 38.5 per cent of the 18-23 months old, 29.0 per cent of the 24-29 months old and 27.3 per cent of the 30-35 months old were suffering from PEM. It is therefore, observed that the highest proportions of malnourished children were in the age-group 12-23 months, that is, in the second year of life, and the lowest proportion in the under 6 months old children. On the whole about a third of the malnourished children were suffering from moderate PEM, whereas two-thirds of the malnourished children in the 30-35 months age-group were suffering from moderate PEM. None was found in severe degree of PEM. The data showed that the second year of life was the period when the child is most susceptible, and commonly succumbs to malnutrition. The most severe grade of PEM has been found most common in the second half of the third year of life.

The female child was observed to be not only suffering more from PEM as compared to the male, but she has also been observed to be suffering more from the severe degree of malnutrition, and the differences in the prevalence and severity of PEM based on sex have been observed to be statistically highly significant as has been depicted in Table 2.

Increasing birth order has also been noticed to be significantly associated with increasing prevalence of PEM, since 85.9 per cent of the firstborns, 72.6 per cent of the second and 55.1 per cent of the third or higher birth order were found to be on the Road-to-health as has been shown in Table 3. Birth order was not found to significantly influence the degree of PEM, This observation was further corroborated by the fact that an increasing number of siblings was also

Significantly associated with an increasing prevalence of PEM as has been given in Table 4 and its association with the severity of malnutrition was also not found to be statistically significant.

TABLE 1
NUTRITIONAL STATUS OF UNDER 3 YEARS OLD CHILDREN

Age Group (Months)	Nutritional Status of the Child				
	On RTH	Malnourished			Total
		Mild	Moderate	Sub Total	
0-5	30 (90.9)	3(100)	0	3 (100) (9.1)	33 (100)
6-11	29 (78.4)	4 (50.0)	4 (50.0)	8(100) (21.6)	37 (100)
12-17	12 (60.0)	6 (75.0)	2 (25.0)	8 (100) (40.0)	20 (100)
18-23	24 (61.5)	10 (66.7)	5 (33.3)	15 (100) (38.5)	39 (100)
24-29	22 (71.0)	6 (88.9)	1 (11.1)	9(100) (29.0)	31 (100)
30-35	16 (72.7)	2 (33.3)	4 (66.6)	6 (100) (27.3)	22 (100)
Total	133 (73.1)	33 (67.3)	15 (32/7)	49 (100) (26.9)	182 (100)

Figures in parentheses indicate percentages.

RTH = Road to health.

On Road-to-health vs. Malnourished (all grades): $X^2 = 10.3$, $df = 5$, $p = 0.07$.

TABLE 2
CHILDREN'S SEX AND ITS RELATIONSHIP WITH THEIR NUTRITIONAL STATUS

Sex	Nutritional Status of the Child				
	On RTH	Malnourished			Total
		Mild	Moderate	Sub Total	
Male	80 (84.2)	13 (86.7)	2 (13.3)	15 (15.8) (100)	95 (100)
Female	53 (60.9)	20 (58.8)	14 (41.2)	34 (39.1) (100)	87 (100)
	133	33	16	49	182

Figures in parentheses indicate percentages. $\chi^2 = 15.64$, $df = 2$, $p = 0.0004$.

TABLE 3
BIRTH ORDER AND ITS RELATIONSHIP WITH CHILDHOOD NUTRITION

Birth Order	Nutritional Status of the Child				
	On RTH	Malnourished			Total
		Mil	Mo	Sub	
1	61 (85.9)	6 (60.0)	4 (40.0)	10 (14.1) (100)	71 (100)
2	45 (72.6)	13 (76.5)	4 (23.5)	17 (27.4) (100)	62 (100)
=/ > 3	27 (55.1)	14 (63.6)	8 (36.4)	22 (44.9) (100)	49 (100)
	133	33	16	49	182

Figures in parentheses indicate percentages.
On Road-to-health vs. Malnourished (all grades): $\chi^2 = 14.0$, $df = 2$, $p = 0.0009$.

TABLE 4

RELATIONSHIP OF CHILDHOOD NUTRITION WITH THE NUMBER OF SIBLINGS

Number of Siblings	Nutritional Status of the Child				
	OnRTH	Malnourished			Total
		Mild	Moderate	Sub Total	
0	47 (87.0)	4 (57.1)	3 (42.9)	7 (13.0) (100)	54 (100)
1	52 (80.0)	10 (76.9)	3 (23.1)	13 (20.0) (100)	65 (100)
=/ >2	34 (54.0)	19 (65.5)	10 (34.5)	29 (46.0) (100)	63 (100)
	133	33	16	49	182

Figures in parentheses indicate percentages.

On Road-to-health vs. Malnourished (all grades): $\chi^2 = 18, 6, df = 2, p = 0.0001$.

The relationship of the education of the head of the family and the child's nutrition has been shown in Table 5. Where the head of the family had received upto 4, 5-9 and >9 years of education, the proportion of malnourished children were 28.4 per cent, 28.9 per cent and 20.0 per cent respectively. Thirty seven per cent of the malnourished children were moderately malnourished in families where the head had received upto 4 years of schooling, whereas in those whose head of the family had received 5 or more years of schooling 27.3 per cent of the malnourished children were in moderate degree of PEM. Hence, educational achievement of the head of the family may have some protective influence against childhood malnutrition.

Table 6 shows the relationship of the education of the mother with the child's nutritional status. A highly significant inverse relationship was observed, with higher maternal education associated with lower prevalence of childhood malnutrition ($p = 0.0006$). The proportion of moderately malnourished children amongst those suffering from PEM has also been noticed to decrease with increasing maternal education.

TABLE 5
RELATIONSHIP OF CHILDHOOD NUTRITION AND EDUCATION OF THE HEAD OF THE FAMILY

Education of Head of the Family	Nutritional Status of the Child				
	On RTH	Malnourished			Total
		Mild	Moderate	Sub Total	
0-4 years	68 (71.6)	17 (63.0)	10 (37.0)	27 (28.4) (100)	95 (100)
5-9 years	37 (71.1)	12 (80.0)	3 (20.0)	15 (28.9) (100)	52 (100)
>9 years	28 (80.0)	4 (57.1)	3 (42.9)	7 (20.0) (100)	35 (100)
	133(73.1)	33 (67.3)	16 (32.7)	49 (26.9) (100)	182 (100)

RTH = Road-to-health

Figures in parentheses indicate percentages.

On Road-to-health vs. Malnourished (all grades): $\chi^2 = 1.06$, $df = 2$, $p = 0.59$.

Mild vs. Moderate Malnourished (3 out of 6 cells having expected value <5, Education groups 5-9 and >9 years considered together),

$\chi^2 = 0.53$, $df = 1$, $p = 0.47$.

The relationship of the main parental or family occupation with childhood nutrition has been shown in Table 7, and observed to be highly significant. In the rural area under study, the children of the agriculturists were observed to be the best nourished, with 91.5 per cent of them on the Road-to-health. On the contrary, 54.7 per cent of the children of labourers and 31 per cent of the children of families engaged in other occupations were seen to be malnourished. A higher proportion (34.4%) of the malnourished children of labourers was suffering from moderate PEM, while the proportion of such children in the case of agriculturists was lowest (25.0%).

TABLE 6**RELATIONSHIP OF MATERNAL EDUCATION AND CHILDHOOD NUTRITION**

Maternal Education	Nutritional Status of the				
	On RTH	Malnourished			Total
		Mild	Moderate	Sub Total	
0-4 years	40 (58.8)	18 (64.3)	10 (35.7)	28 (41.2) (100)	68 (100)
5-9 years	47 (74.6)	11 (68.7)	5 (31.3)	16 (25.4) (100)	63 (100)
>9 years	46 (90.2)	4 (80.0)	1 (20.0)	5 (9.8) (100)	51 (100)
	133 (73.1)	33 (67.3)	16 (32.7)	49 (26.9) (100)	182 (100)

Figures In parentheses Indicate percentages.

On Road-to-health vs. Malnourished (all grades) : $\chi^2 = 14.07$, df = 2, p = 0.0006.

Mild vs. Moderate Malnutrition (maternal education groups 5-9 and >9 years considered together for the Chi-square test).

$\chi^2 = 0.28$, df = 1, p = 0.60.

TABLE 7**RELATIONSHIP OF THE MAIN PARENTAL/FAMILY OCCUPATION AND CHILD NUTRITION**

Main Parental/ Family Occupation	Nutritional Status of the Child				
	On RTH	Malnourished			Total
		Mild	Moderate	Sub Total	
Agriculture	58 (93.5)	3 (75.0)	1 (25.0)	4 (6.5) (100)	62 (100)
Labour	36 (52.9)	21 (65.6)	11 (34.4)	32 (47.1) (100)	68 (100)
Others	39 (69.0)	9 (69.2)	4 (30.8)	13 (31.0) (100)	52 (100)
	133	33	16	49	182

Figures in parentheses indicate percentages.

Road-to-health vs. Malnutrition (all grades): $\chi^2 = 27.3$, df = 2, p = 0.0000.

The relationship of the monthly family income with childhood nutrition has been given in Table 8. Forty three point eight per cent of the children of the poorest families (with monthly income of under Rs.1000) were malnourished, while 32.6 percent of those with monthly family income of Rs.1000-1999, and 16.9 per cent of those with monthly family income of Rs.2000 or more were suffering from PEM as has been given in Table 8. The prevalence of moderate malnutrition amongst the malnourished children in these income groups was 57.2 per cent, 41.4 per cent and 0 per cent respectively. Hence, the prevalence of both overall PEM as well as that of the more severe grade of PEM were observed to be the highest in the poorest and least in the rich families.

TABLE 8

RELATIONSHIP OF MONTHLY FAMILY INCOME AND CHILDHOOD NUTRITION

Monthly Family Income (Rs.)	Nutritional Grade of the Child				
	On RTH	Malnourished			Total
		Mild	Moderate	Sub Total	
<1000	9 (56.2)	3 (42.8)	4 (57.2)	7 (43.8) (100)	16 (100)
1000 to 1999	60 (67.4)	17 (58.6)	12 (41.4)	29 (32.6) (100)	89 (100)
2000 or more	64 (83.1)	13 (100)	0	13 (16.9) (100)	77 (100)
	133	33	16	49	182

Figures in parentheses indicate percentages.

On road-to-health vs. Malnutrition (all grades): $\chi^2 = 7.7$, DF = 2, p = 0.0213.

Eighty per cent of the children who were put on the breast on the first day of birth had normal weights, while only 69 per cent of those who were put on the breast later were on the Road-to-health. Twenty per cent of the malnourished ones in the former and 31 per cent in the latter group were suffering from moderate PEM. Putting the child on the breast on the day of birth appears to protect the child from malnutrition later as has been shown in Table 9.

Table 10 shows that of the 156 children who were not being exclusively breast fed or had been weaned, the majority (57.7%) were breast fed exclusively till 4-6 months of age, 23.1 per cent till 7-9 months, 4.5 per cent for >9 months

TABLE 9

RELATIONSHIP OF CHILDHOOD NUTRITION WITH THE TIME OF INITIATION OF BREASTFEEDING

When Breastfeeding Started	Nutritional. Status of the Child				
	On RTH	Malnourished			Total
		Mild	Moderate	Sub Total	
1st day	52 (80.0)	11 (84.6)	2 (15.4)	13 (20.0) (100)	65 (100)
>1 day	80 (69.0)	22 (61.1)	14 (38.9)	36 (31.0) (100)	116 (100)
	132*	33	16	39	181*

Figures in parentheses indicate percentages.

*1 child did not receive breast milk (adopted baby, on RTH)

On road-to-health vs. Malnutrition (all grades) : $\chi^2 = 2.6$, df = 1, p = 0.11.

Mild vs. Moderate Malnutrition : χ^2 (Yates corrected) = 1.45, df = 1, p = 0.23.

TABLE 10

EFFECT OF PERIOD OF EXCLUSIVE BREASTFEEDING ON CHILDHOOD NUTRITION

Period of Exclusive Breastfeeding	Nutritional Status of the Child				
	On RTH	Malnourished			Total
		Mild	Moderate	Sub Total	
<4 months	13 (56.5)	4 (40.0)	6 (60.0)	10 (43.5) (100)	23 (14.7) (100)
4-6 months	65 (71.3)	18 (72.0)	7 (28.0)	25 (27.8) (100)	90 (57.7) (100)
7-9 months	28 (77.8)	6 (75.0)	2 (25.0)	8 (22.2) (100)	36 (23.1) (100)
>9 months	4 (57.2)	2 (66.7)	1 (33.3)	3 (42.8) (100)	7 (4.5) (100)
	110	30	16	46	156

Figures in parentheses indicate percentages.

On road-to-health vs. Malnutrition (periods 7-9 and >9 months have been considered together for the Chi-square test) : $\chi^2 = 2.61$, df = 2, p = 0.27.

And 14.7 per cent till <4 months of age. Out of these who received exclusive breast feeding for varying periods less than 4 months of age, 43.5 per cent were malnourished, while the proportion of malnourished children amongst those who were exclusively breastfed for 4-6, 7-9 and >9 months were 27.8 per cent, 22.2 per cent and 42.8 per cent respectively. Hence, adding supplements earlier than 4 or later than 9 months of age in this rural population is observed to be associated with a higher prevalence of PEM, while exclusive breast feeding till 7-9 months of age is associated with the lowest levels of PEM *per se* as well as the more severe grade of PEM (Table 10). The data suggests that exclusive breast feeding till 7-9 months of age would help prevent childhood PEM in this population whereas the prevalent practice was to breast-feed exclusively till 4-6 months of age.

As has been shown in Table 11, out of 147 children who were receiving top milk, 37.4 per cent were being bottle fed. 74.5 per cent of the bottle fed children and 69.6 per cent of those not bottle-fed were on the Road-to-health, but

TABLE 11

THE USE OF THE FEEDING BOTTLE AND ITS EFFECT ON NUTRITIONAL STATUS OF THE CHILD

Feeding Bottle	Nutritional Grade of the Child				
	On RTH	Malnourished			Total
		Mild	Moderate	Sub Total	
Yes	41 (74.5)	5 (35.7)	9 (64.3)	14 (25.5) (100)	56 (37.4) (100)
No	64 (69.6)	23 (82.1)	5 (17.9)	28 (30.4) (100)	92 (62.6) (100)
	105 (71.4)	28 (66.7)	14 (33.3)	42 (28.6) (100)	147 (100) (100)

Figures in parentheses indicate percentages.

On Road-to-health vs. Malnutrition (all grades) : $\chi^2 = 0.42$, $df = 1$, $p = 0.52$.

Mild vs. Moderate Malnutrition : χ^2 (Yates corrected) = 7.1. $df = 1$, $p < 0.01$.

these differences were not statistically significant ($p = 0.52$). However, 64.2 per cent of the malnourished bottle-fed children were in moderate PEM as compared to only 17.9 per cent of those not bottle-fed, and these differences were found to be statistically highly significant ($p < 0.01$). Hence, in this population whereas the use of the feeding bottle was not observed to significantly affect the prevalence of childhood malnutrition, it was found to be significantly associated with the more severe degree of PEM. 65.8 per cent of the infants, 29.6 per cent of those in the second year of life and 23.1 per cent of those* in the third year of life were being bottle-fed, showing that nearly two-thirds of infants were exposed to the dangers of the feeding bottle.

72.5 per cent of the children aged 6 months and above had attained 6 kg or more weight, while 27.5 per cent had attained less than 6 kg weight at 6 months of age. Of the former group, 85.2 per cent were on the Road-to-health while 14.8 per cent were malnourished, 87.5 per cent of the malnourished ones suffering from mild and 12.5 per cent from moderate PEM. Of the latter group, only 26.8 per cent were on the Road-to-health while 73.2 per cent were malnourished, 53.3 per cent of the malnourished ones suffering from mild and 46.7 per cent from moderate PEM. Hence, attainment of <6 kg weight at 6 months of age is observed to be significantly associated with a higher prevalence as well as more severe PEM as has been given in Table 12.

TABLE 12

RELATIONSHIP OF CHILDHOOD NUTRITION WITH WEIGHT ATTAINED AT SIX MONTHS OF AGE

Weight at 6 months	Nutritional Status of the Child				
	OnRTH	Malnourished			Total
		Mild	Moderate	Sub Total	
<6Kg	11 (26.8)	16 (53.3)	14 (46.7)	30 (73.2) (100)	41 (27.5) (100)
=/≥ 6 Kg	92 (85.2)	14 (87.5)	2 (12.5)	16 (14.8)	108 (72.5) (100)
	103	30	16	46	149 (100)

Figures in parentheses indicate percentages.

On road-to-health vs. Malnutrition (all grades) : $\chi^2 = 47.4$, $df = 1$, $p = 0.0000$.

Mild vs. Moderate Malnutrition: $\chi^2 = 5.37$, $DF = 1$, $p = 0.02$.

In Table 13, the mean daily calorie and protein intake, in various age-groups, as total calories/protein and as the proportion of the recommended allowance has been shown. The data shows that in all age-groups, on an average, the children's diet is deficient more in calories than in protein, and except during the first 6 months of age the protein intake is more or less adequate. Studies in India have demonstrated deficient intake of breast milk by 37.7 per cent, 27.3 per cent and 24.3 per cent of the optimal intake at 1, 3 and 6 months of age⁹. Obviously, every effort needs to be made to ensure maximum breast feeding and to bridge the energy gap. If daily calorie intake is increased, the protein will look after itself, as it were. Daily energy and protein intake of less than the recommended allowances was observed to be associated with a higher prevalence of PEM as has been depicted in Table 14.

0-<6 Months Old (tables deleted): Out of the 33 children aged 0-<6 months, all were currently being breastfed (with or without supplements), 23 (69.7%) exclusively, 7 (21.2%) were receiving breast milk and top milk, 2 (6.1%) were receiving top milk and semi-solid supplements in addition to breast milk, and 1 (3.0%) was receiving semi-solid supplements in addition to breast milk, but no top milk, 87.9 per cent were put on the breast within the first 3 days, 36.4 per cent on the first and 51.5 per cent between 2-3 days, and 12.1 per cent were put on the breast after 3 days of birth.

TABLE 13

MEAN DAILY ENERGY AND PROTEIN INTAKE IN UNDER THREE CHILDREN

Age Group (Months)	Energy (Calories)		Protein (Gms)	
	Mean Daily Intake	Percentage of RDA	Mean Daily Intake	Percentage of RDA
0-5	422 (154)	64(21)	7(4)	59 (28)
6-11	779 (271)	77(27)	19 (10)	99 (56)
12-17	866 (389)	71 (32)	23 (11)	97(44)
18-23	1039 (307)	85 (25)	29 (9)	110(34)
24-29	923 (309)	75 (25)	29 (10)	98(34)
30-35	976 (347)	79 (26)	30 (10)	93 (31)

RDA = Recommended daily allowance.

Figures in parentheses indicate Standard Deviation.

TABLE 14

NUTRITIONAL STATUS OF UNDER THREE CHILDREN ACCORDING TO THE DAILY ENERGY AND PROTEIN INTAKE

Daily Intake (% of RDA)	Nutritional Grade of the Child				
	On RTH	Malnourished			Total
		Mild	Moderate	Sub Total	
CALORIES					
<75	73 (69.5)	21 (65.6)	11 (34.4)	32 (30.5) (100)	105 (100)
75-99	28 (73.7)	7 (70.0)	3 (30.0)	10 (26.3) (100)	38 (100)
=/>100	32 (82.0)	5 (71.4)	2 (28.6)	7 (18.0) 000)	39 (100)
	133	33	16	49	182

RTH vs. MN: $\chi^2 = 2.28$, DF = 2, p = 0.32.

PROTEIN	45 (69.2)	13 (65.0)	7 (35.0)	20 (30.8) (100)	65 (100)
<75	28 (68.3)	8 (61.5)	5 (38.5)	13 (31.7) (100)	41 (100)
75-99	60 (78.9)	12 (75.0)	4 (25.4)	16 (21.1) (100)	76 (100)
=/>100					
	133	33	16	46	182

RTH vs. MN: $\chi^2 = 2.30$, df = 2, p = 0.32 RDA = Recommended Daily Allowance Figures in parentheses indicate percentages. MN = Malnourished.

CONCLUSION

The study findings revealed that more than a quarter of the under 3 years old children in village Lalton Kalan in Ludhiana district of Punjab were suffering from PEM. One-third of the malnourished ones were suffering from moderate PEM. The highest proportion of malnourished children were in their second year

of life, while two-thirds of the malnourished 30-35 months old were observed to be suffering from moderate PEM. A female child, of a high birth order, with an illiterate mother in a poor family engaged in an occupation other than agriculture was demonstrated to be at the highest risk of PEM. Introduction of supplements earlier than 4 months of age and exclusive breast feeding till >9 months of age were both observed to be associated with a higher prevalence and severity of PEM. The average nutritional intake of all age-groups was deficient, more in calories than in protein.

However, a hopeful situation has emerged because of the practice of breastfeeding which was not alien to this population, and practised universally in the first 6 months of life. Efforts were required to maximise on, and take advantage of this cultural reality. An increase of at least 6 kg body weight at 6 months of age was observed to be significantly associated with low prevalence of PEM, and this goal was not attainable even amongst the poor with exclusive breast feeding¹⁰. The children who were put on the breast on the day they were born suffered less from PEM subsequently. Women must therefore be encouraged and motivated to do so. Exclusive breastfeeding till 7-9 months of age appears to be desirable. Another researcher recommended that exclusive breastfeeding, taking every step to ensure maximum output, should be continued until the worker and the mother were convinced¹¹. She further suggested that optimal month for addition of supplements "may be the 9th, not the 7th month and certainly not the 5th". Authors of this study also tend to agree with her suggestion which so far has been considered "heretical" by most health workers and nutritionists.

The nutritional intake of children in the present study has been found to be deficient more in calories than in a protein, and they have been observed to be suffering from "chronic starvation", however, unpleasant it may sound. Intake of food, particularly that of pure calorie-providing food items, needs to be increased, through more frequent feeds and addition of significant amounts of high-energy foodstuffs like sugars and fats in the daily diet. Protein metabolism is quite expensive in terms of energy, and with low levels of calorie intake the utilisation of protein is poor. As Sukhatme observes "...unless the calorie needs are met, protein malnutrition cannot be avoided"¹². Advising a "high protein diet" to combat PEM, as is still firmly believed and practised by many health professionals, it would appear not only superfluous but may actually be counter-productive in the presence of more-or-less adequate protein but very deficient calorie intake.

However, the prevention of childhood malnutrition extends beyond purely nutritional considerations. The roots of the problem lie in poverty, maternal illiteracy, discrimination amongst the female offspring, lack of family planning with too many and too frequent, and occupational opportunities, as this study demonstrates. A multi-sectoral approach to combat childhood malnutrition is

Essential, and efforts to increase female literacy, encouraging acceptance of family planning especially amongst the younger couples through emphasis on spacing methods, encouraging equality of the sexes and overall socio-economic development are very important components to fight against childhood malnutrition.

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पंजाब में लुधियाना शहर में लालटेन कला गांव में 3 वर्ष से कम आयु के 182 शिशुओं के बारे में किए गए अध्ययन संबंधी प्रस्तुत लेख से पता चलता है कि 26.9 प्रतिशत बच्चे कुपोषण से ग्रस्त पाये गये थे, और उनमें से एक तिहाई बच्चे प्रोटीन ऊर्जा कुपोषण से न्यूनाधिक प्रभावित थे। कुपोषण ग्रस्त बच्चों का सर्वाधिक अनुपात दो वर्ष की आयु वाले बच्चों में पाया गया था। जबकि माध्यम स्तरीय कुपोषण से ग्रस्त बच्चों का सर्वाधिक अनुपात ढाई वर्ष से 3 वर्ष के आयु वर्ग के बच्चों में पाया गया था। शैशवकालीन कुपोषण अथवा प्रोटीन ऊर्जा कुपोषण की न्यूनाधिक गम्भीर स्थिति से जुड़े घटक निम्न स्तर से पाये गये थे: बालिका शिशु, प्रस्रिता क्रम और सहोदरों की संख्या में वृद्धि, परिवार के मुखिया का शैक्षिक स्तर, विशेष कर माता का शैक्षिक स्तर, निर्धनता, कम आय वाले पारिवारिक धंधे, बच्चों के जन्म के पहले दिन के बाद स्तनपान शुरू कराना, 4से 9 माह अथवा इससे अधिक आयु तक के बच्चों को पूरी तरह स्तनपान रखना, 6 माह की आयु में बच्चे का 6 किलो से अधिक शारीरिक भार होना और जिन बच्चों को ऊपर का दूध दिया जाता है उन्हें बोतल से दूध देना जारी रखना आदि। अधिकांश माताएं (57.7 प्रतिशत) अपने शिशुओं को 4-6 माह तक पूरी तरह स्तनपान पर रखती थी। लगभग 23 प्रतिशत शिशुओं के मामले में यह पाया गया था कि उन्हें 7-9 माह की आयु तक पूरी तरह स्तनपान पर रखा जाता था और यह पाया गया था कि इन बच्चों में प्रोटीन ऊर्जा पोषण का स्तर सर्वाधिक कम था। 6 से कम आयु के शिशुओं के आहार में प्रोटीन तथा कैलोरी मात्रा कम पाई गई थी। 6माह से कम आयु के सभी बच्चों को मां का दूध प्राप्त होता था। तथा इनमें से 69.7 प्रतिशत को पूरी तरह स्तनपान पर रखा गया था। कुपोषण ग्रस्त बच्चों के उपचार के सिलसिले में जनांकिकीय, सामाजिक-आर्थिक, सांस्कृतिक तथा पर्यावरण

संबंधी घटकों की भूमिका के महत्व को समझते हुए तथा कुपोषण की स्थिति पर काबू पाने के लिए ठोस उपाय करने हेतु यह सुझाव प्रस्तुत किए गए हैं कि बच्चे को जन्म के दिन से स्तनपान कराया जाना बच्चे को स्तनपान पर रखा जाना चाहिए तथा उच्च प्राटीन युक्त आहार पर जोर देने के बजाय कैलोरी संबंधी कमी को दूर करने के लिए बच्चे को पर्याप्त आहार भी देना चाहिए।

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**UTILISATION OF IMMUNISATION SERVICES
AMONG UNDER-FIVE CHILDREN IN A
SELECTED SUGALI TRIBAL AREA OF
ANANTHAPUR DISTRICT**

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ABSTRACT

The purpose of the present study was to assess how effectively immunisation services were being utilised in a selected underprivileged tribal community of India, and to identify the reasons for non-utilisation of immunisation services.

The study was delimited to the tribal area under Somandepalli Mandal only and to the verbal statements of parents of under-five children regarding immunisation services. Observation was made to the checking, the B.C.G.iScar on the left upper arm of children.

There were 255 mothers with a total of 545 under-five children in the selected area. 284 were female and 261 were male. All of them were included in the study;

The findings of the study regarding awareness of mothers showed that 70.20 per cent had average awareness, 16.47 per cent had no awareness, 10.98 per cent had low awareness and, only 2.39 per cent had high awareness about immunisation. Significant association was found between mothers' awareness and the education. No significant association was found between mothers' awareness and other sample characteristics, i.e., mothers' age, occupation, family type and family monthly income.

Regarding immunisation status of mothers, it was found that 48.63 per cent did not have any T.T immunisation and 40 per cent only had the two required doses of T.T. immunisation during their last (immediately preceding) pregnancies.

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The utilisation of D.P.J, and Polio vaccines was better than other vaccines. There was a gradual increase in the percentage of subsequent doses of immunisation of Polio and D. P. T. 30.08 per cent of children were immunised with B.C.G., and only 4.23 per cent were protected against measles.

Mothers with higher awareness had a higher percentage (81.82 per cent) of fully immunised children. Mothers with no awareness had 95.05 per cent children who were not immunised.

Significant association was found between mothers' education, awareness and immunisation status of under-five children.

The reasons identified for low immunisation according to priority were: non-availability of facilities at the Centre, lack of knowledge about immunisation, immunisation team not visiting their Thanda, child away from home at the time of immunisation, and immunisation time not being convenient.

Tribal populations have unique health practices but very few studies have been done for understanding the health behaviour of these communities. Lot of emphasis is being laid by the Government of India on tribal populations as they are the weaker sections of the community and at high risk for various health problems. Huge amounts of money, material and manpower are being provided by the Government to implement health services among the tribal communities. Emphasis has already been laid on health care facilities for tribal population in an attempt to bring them closer to the Indian mainstream.

It is essential that the Universal Immunisation Programme (UIP) should reach every remote corner, but one is not sure how much of this programme really reaches the interior tribal areas. Studies on utilisation of immunisation, specially in children of peripheral groups like tribals, are very vital to provide the required data. Evaluation of UIP, both quantitatively and qualitatively, has to be carried out in a different areas as it will identify the deficiencies and administrative bottlenecks of the UIP specific to that region. This will enable the policy-makers and the administrators to make the necessary changes in the programme and to achieve the desired results.

The present study was undertaken in a selected Sugali tribal area of Ananthapur district with the objectives: (i) to assess awareness of mothers of under-five children about immunisation and immunisation services; (ii) to assess utilisation of immunisation services as expressed by mothers of under-five children; and (iii) to identify reasons for non-utilisation of immunisation services.

As not even one systematic study has been done in the selected tribal area, it was expected that such a study would help in providing baseline data and in

Developing a better understanding of the existing health practices of the tribal community. The information gathered would serve two purposes, firstly, to understand tribal culture and health practices, and secondly, to plan appropriate health intervention measures.

MATERIALS AND METHOD

Sampling and Data Collection: A descriptive survey was carried out in Somandepalli Mandal of Ananthapur district. This Mandal consists of twenty one villages, out of which four villages are inhabited by the Sugali tribal, *i.e.* (1) Venkatapuram Thanda, (2) Velgamkulapalli Thanda, (3) Naginayenichervu Thanda, and (4) Adadhakulapalli Thanda. Adadhakulapalli Thanda had been selected for pilot study and the remaining three Thandas were selected for the actual data collection.

The population of this study consisted of mothers of under-five children in the three selected Thandas. Initially, a list of all mothers with under-five children and the list of all their under-five children were made through a complete enumeration method. There were 255 mothers with a total of 545 under-five children available at the time of study. The total population was surveyed.

The information required to be collected for the present study was primarily on the utilisation of immunisation services, and secondarily, on the awareness of tribal population regarding immunisation services, a third aspect was of the assessment of the reasons for non-utilisation. The technique used for collecting the information was the interview of the parents.

A semi-structured interview schedule consisting of four parts was used (i) Identification data; (ii) Parents' awareness about immunisation; (iii) Immunisation status of each child; and (iv) Reasons for non-utilisation/discontinuation of immunisation services. Immunisation status was computed by comparing the actual doses received by a child with what the child ought to have received for that age.

The pilot study was conducted on eleven mothers with a total of 25 under-five children in Adadhakulapalli Thanda.

Sample Characteristics: Majority of parents (74.51% fathers and 76.47% of mothers) belonged to the age group of 20-29 years. More males (3.04% fathers) were educated upto middle school, when compared to females (1.53% mothers). Illiteracy was more among mothers (79.60%) than fathers (66.67%). There were more women labourers (79.22%) than men labourers (40.78%).

Discussion of Findings: Tribal mothers differed widely in their awareness of immunisation. Their awareness scores ranged from zero to 29 out of a maximum of 30. The awareness of tribal women seemed to follow a normal distribution as 70.20 per cent women scored average awareness scores.

Awareness and education were seen to be positively related in the case of the sample as mothers with higher education scored higher on awareness.

Mothers educational levels also had a positive relationship with immunisation status of children. Those mothers who were educated upto primary school or middle school had a higher percentage of fully immunised children and none of the children of middle school educated mothers were unprotected as has been shown in Table 1. The important role played by education in building of awareness and utilisation of preventive health services has been sufficiently indicated.

TABLE 1

RELATIONSHIP BETWEEN MOTHERS' EDUCATION, AWARENESS, AND IMMUNISATION STATUS OF THEIR UNDER-FIVE CHILDREN

Educational Status of Mothers	Mean Awareness Status of Mothers	Immunisation Status of Under-five Children			
		Fully Immunise	Partially Immunise	Not Immunised	Total Children
Illiterate (N=203)	12.19	0.99	55.58	43.41	403
Primary School (N=48)	16.15	6.82	62.88	30.30	132
Middle School (N=4)	22.00	70.00	30.00	-	10

Other scholars too have concluded that the awareness about immunisation and its utilisation were higher among mothers with higher education, higher socioeconomic status and in nuclear families.

Though better education of mothers resulted in higher utilisation of services, there were very few fully immunised children in the sample. Among the 545 under-five children, only 3.67 per cent were fully immunised, 56.88 per cent were

partially immunised and 39.46 per cent were not at all immunised as has been indicated in Table 2. However, other researchers who conducted studies in tribal areas reported comparatively higher percentages of fully immunised children. According to the other study 23 per cent children were fully immunised, 51.1 per cent were partially immunised and 25.9 per cent were not at all immunised³. Some other scholars also reported that 50.6 per cent tribal children were fully immunised.

TABLE 2
IMMUNISATION STATUSES OF UNDER-FIVE CHILDREN

(N=545)

Immunisation Status	Frequency	Percentage
Fully Immunised	20	3.67
Partially Immunised	310	56.88
Not Immunised	215	39.46

The present study revealed that a higher percentage of female children (4.23%) were completely immunised as compared to male (3.07%), it also showed that the percentage of not immunised children was higher in male (42.53%) than in female (26.62%). The sex ratio of the tribal population of the district indicated that the percentage of females were higher than the percentage of males.

The immunisation status of under-five children for specific vaccination has been given in Table 3. The utilisation of D.P.T. and Polio vaccination was better than other vaccines. A gradual decrease or tapering down was observed for subsequent doses of immunisation, i.e. 62.69 per cent of children received the first dose of D.P.T. and Polio, but only 60.00 per cent received the second dose, and a much lower percentage (48.11%) received the third dose. As for the booster doses for D.P.T. and Polio the findings revealed a dark picture as only 3.66 per cent had received the D.P.T. first booster dose and only 3.23 per cent received the second booster.

Only 39.08 per cent had a BCG scar and only 4.23 per cent children were protected against measles.

According to a conducted survey of tribal blocks of Rajasthan, it was found that only 23 per cent children were fully immunised, a very high drop out rate of 51.1 per cent was also found for D.P.T. and O.P.V.

Reasons for Non-utilisation of Immunisation Services: Regarding the reasons for non-utilisation and discontinuation of immunisation services, causes associated with health services were the most frequently stated like non-availability of facilities at centre (36.19%) and immunisation team not visiting the Thanda (12.19%). The time of immunisation was not convenient for 4.76 per cent of the people. Various other researchers also in their studies supported the above reasons and stated that the non-availability of vaccines at the centres was the first cause expressed by parents for non-utilisation, the time of the clinic not being suitable was another reason.

Lack of knowledge regarding immunisation and its utilisation was mentioned by 28.76 per cent mothers as another reason for poor immunisation of their children in the present study. This was mentioned as the second common reason for non-utilisation of immunisation services, a small percentage (1.14%) of female children were unprotected due to sex discrimination.

CONCLUSIONS

It can be said that immunisation coverage had been very low in the selected tribal areas of the district. Poor facilities and lack of awareness were the main hurdles to the utilisation of these services by the tribals. Improving knowledge and awareness of immunisation services, increasing literacy of women and strengthening health facilities would improve the immunisation status of under-five children.

To achieve the goal of Health for All By the Year 2000 A.D. it is essential to involve primary health centres more actively in providing health care services on a regular basis to the remote areas and communities. In order to have inter-sectoral coordination with other developmental areas like education and to increase peoples' awareness of health care facilities and further to facilitate better utilisation of health services, planned health educational programmes should be conducted in Thandas.

It is suggested that health workers should have clarity of goals and work according to people's needs. The programmes should be people oriented. The time of providing immunisation should be adjusted so that all the mothers can utilise the services. Health workers should work closely with the local leaders and involve the tribal community in planning and implementing health services.

The knowledge of health workers should be updated by conducting workshops, orientation, reorientation and inservice education programmes. A stricter supervision should be exercised over health personnel. Supervisors should be advised to stay in their respective areas and supervise health workers in

Implementing health care programmes. Unprotected children should be identified and immunised in order to ensure full coverage. Adequate quantity of vaccines should be supplied.

TABLE 3
SPECIFIC IMMUNISATION STATUS OF UNDER-FIVE CHILDREN

Vaccine	Number of Children who ought to have been immunised	Number of children immunised	Percentage of children immunised
B.C.G.	545	213	39.08
D.P.T. First Dose	536	336	62.69
D.P.T. Second Dose	530	318	60.00
D.P.T. Third Dose	530	255	48.11
D.P.T. Booster Dose	273	10	3.66
D.T. Booster	62	2	3.23
Polio First Dose	536	336	62.69
Polio Second Dose	530	318	60.00
Polio Third Dose	530	255	48.11
Polio Booster	273	10	3.66
Measles	496	21	4.23

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प्रस्तुत अध्ययन का उद्देश्य यह पता लगाना था कि देश के एक अल्पसुविधा प्राप्त आदिवासी समुदाय में इम्यूनाइजेशन संबंधी उपलब्ध सुविधाओं का उपयोग कितने कारगर ढंग से किया जा रहा था तथा इम्यूनाइजेशन सेवाओं की उपयोगिता संबंधी कारणों का पता लगाना था।

इस अध्ययन को सोमान्द्री-अली मंडल के आदिवासी क्षेत्र तक ही सीमित रखा गया था और इस अध्ययन हेतु 5 वर्ष से कम आयु के बच्चों के माता-पिता द्वारा इन इम्यूनाइजेशन सेवाओं के बारे में मौखिक रूप से सेवाएं प्राप्त की गई थी। बच्चों की

बाईं भुजा पर बी. सी. जी. के टीके से होने वाले निशान की जांच करके सेवाओं की उपलब्धता के बारे में परीक्षण भी किया गया था। चुने गए आदिवासी क्षेत्र में पांच वर्ष से कम आयु के 545 बच्चों और 255 माताओं का अध्ययन किया गया था। इन शिशुओं में से 284 बालक और 261 बालिका शिशु थे। इन सभी अध्ययन के अर्न्तगत शामिल किया गया था।

अध्ययन से प्राप्त परिणामों से पता चलता है कि औसतन 70.20 प्रतिशत माताओं को इस बारे में जानकारी प्राप्त थी और 1647 प्रतिशत इन सेवाओं से अवगत नहीं पाई गई थी, जबकि 10.98 प्रतिशत को बहुत कम जानकारी थी। केवल 2.39 प्रतिशत माताओं को इम्यूनाइजेशन सेवाओं के बारे में अच्छे स्तर की जानकारी थी। माताओं के शिक्षा स्तर और इम्यूनाइजेशन सेवाओं के प्रति उनकी चेतना स्तर में महत्वपूर्ण सह-संबंधी होना पाया गया था। माताओं के चेतना स्तर और अन्य घटकों जैसे माताओं की आयु, व्यवसाय, पारिवारिक स्वरूप, परिवार की मासिक आय आदि घटकों में कोई महत्वपूर्ण सह-संबंध नहीं पाये गये थे।

माताओं के इम्यूनाइजेशन संबंधी स्तर के बारे में यह पाया गया था कि पिछली गर्भ-धारण अवधि के दौरान 48.63 प्रतिशत महिलाओं ने टेटनेस टेक्साइड इम्यूनाइजेशन नहीं लिया था। और 40 प्रतिशत महिलाओं ने टेटनेस टेक्साइड की दोनों खुराक ली थी।

दूसरे टीकों की तुलना में डीपीटी और पोलियो के टीके की उपयोगिता बेहतर पाई गई थी। पोलियो और डीपीटी इम्यूनाइजेशन की अनुवर्ती खुराक संबंधी प्रतिशतता में धीरे-धीरे वृद्धि हुई थी। 30.08 प्रतिशत बच्चों को बी. सी. जी. टीके लगवाये गये थे तथा खसरे से बचाव के लिए 4.23 प्रतिशत को इम्यूनाइजेशन दिया गया था।

इम्यूनाइजेशन सेवाओं के बारे में बेहतर जानकारी रखने वाली महिलाओं में पूरी तरह से इम्यूनाइज्ड बच्चों की प्रतिशतता उच्च (81.82 प्रतिशत) उच्च पाई गई थी। जहां तक जानकारी न रखने वाली माताओं का प्रश्न था, 95.05 प्रतिशत बच्चों को इम्यूनाइजेशन नहीं दिया था।

माताओं की शिक्षा, सेवाओं की प्रति उनकी चेतना और 5 वर्ष से कम आयु के शिशुओं के इम्यूनाइजेशन स्तर में महत्वपूर्ण सह-संबंध पाये गये थे।

वरीयता क्रम के अनुसार इम्यूनाइजेशन के अल्प उपयोग के लिए उत्तरदायी कारण निम्न प्रकार से पाये गये थे: केन्द्र में सुविधाएं उपलब्ध न होना, इम्यूनाइजेशन सेवाओं के बारे में जानकारी का अभाव, उनके थांडा क्षेत्र में इम्यूनाइजेशन टीम द्वारा दौरा न करना, इम्यूनाइजेशन सेवाएं प्रदान करने के समय बच्चों का घर से बाहर होना और इम्यूनाइजेशन का समय उनकी सुविधानुकूल न होना आदि।

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COSTING OF DIETARY SERVICES AS PART OF AN OPERATIONAL MANAGEMENT – BUDGETING SYSTEM

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ABSTRACT

Cost analysis has become a resource tool for financial management in health care institutions. Dietary services have been considered as one of the major departments of the hospital and incur an expenditure of 3 to 5 per cent of the total cost of hospital care. A study conducted at a Tertiary Care Medical Institute shows that it spends approximately 3 per cent of total hospital budget annually on providing diet to in-door-patients. The cost of diet per patient per day involves an expenditure of Rs.33.80, which when compared with some public hospitals is on the higher side.

The growing complexity of hospital operation in size and volume, increase in demand of services, high standard of care requires systematic use of hospital accounting system in general and cost accounting in particular. Cost analysis has become a resource tool for financial management in hospitals. Under this process, the cost of operating different services is generally allocated to different cost centres. Cost analysis has also become necessary to assess the efficiency and effectiveness of the functions and their cost implications with a view to contain cost or reduce them while maintaining the quality. Thus, a costing exercise will involve considering prices, product mix and cost control of expenses. Cost represents the resources expended in carrying out an activity. The costing process points out the factors that influences the consumption of resources, efficiency and effectiveness of the process and economics of the output. Dietary services were one of the major departments of the hospital responsible for about 3 to 5 per cent spending out of the total expenditure of the hospital care¹. The objective of the department is to provide optimum nutrition in a scientific and in an aesthetic manner with

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minimum cost. The purpose of cost analysis is to create cost-awareness amongst the staff, to determine the unit cost of providing a particular service, built up a cost data base which helps in budgeting and comparison of the data with other hospitals. It is a tool to bring efficiency and helps for future planning.

OBJECTIVE

To find out the cost of diet per patient per day at tertiary care teaching institute with 425 functional bed complement.

METHODOLOGY

While working out the cost, direct labour, materials, equipment depreciation, electricity, steam, and LPG, were undertaken. The rental value of building and other costs like the cost of maintenance were not taken into consideration.

The existing records of one year were studied alongwith interviews of the functionaries at various areas. Cost of equipments for more than ten years duration was not taken into consideration, taking the average life of equipment to be ten years. However, the equipment in the department has been in use for more than ten years and further, expected to run for another five years.

OBSERVATIONS AND DISCUSSION

The study was conducted at a 500 bedded tertiary care hospital with a present functional bed complement of 425 beds, where on an average 400 patients were served per day. As a policy matter, all the in-door-patients were provided diet by the hospital. Normal diet constitutes about 70-80 per cent of total diets served, 10-15 per cent liquid diets, 6 to 11 per cent therapeutic diets and 1.5 to 2.5 soft diets. For types of diets and monthly expenditures see Tables 1 and 2. The approved scale of diet has been given at Appendix 'A*.

Labour Cost It costs Rs.3, 796 per day towards labour costs (excluding terminal benefits like gratuity and pension) to the hospital to provide food to approximately 400 patients daily, which comes to Rs.9.49 per diet.

Material Cost Majority of the items needed for preparation of meals were obtained on annual rate contract which caters for the fluctuating market prices. Other items were purchased directly from the manufacturer, the Super Bazar or locally available in the open market. The average cost of material for each patient per day comes to Rs.20. This includes breakfast, lunch, evening tea and dinner. It has been observed that dietary scales were quite on the liberal side and more so far the patient.

TABLE 1
PERCENTAGE OF TYPES OF DIETS SERVED

Month	Full Diet	Soft Diet	Liquid Diet	Therapeutic Diet
January 1992	80	1.7	12.1	6.2
February 1992	78	1.6	11.8	8.0
March 1992	72	2.5	13.5	11.6
April 1992	72	1.8	15.3	10.6
May 1992	75.1	2.3	13.7	7.8
June 1992	75	2.2	14.7	8.8
	75.33	2.01	13.5	8.8

TABLE 2
MONTHLY EXPENDITURE ON RAW MATERIAL

Month	Full Diets	Soft Diets	Liquid Diets	Therapeutics Diets	Material Cost
January 1992	9651	205	1463	757	Rs.17.97
February 1992	8678	187	1316	897	Rs. 17.40
March 1992	7676	196	1636	1133	Rs. 16.40
April 1992	9349	297	1705	1092	Rs.20.21
May 1992	8956	321	1680	1445	Rs. 16.40
June 1992	7513	224	1480	789	Rs.19.20
Average Cost	-	-	-	-	Rs.17.93

Miscellaneous (Allocation) Cost These costs include:

Electricity	Re.0.61 per patient per day
Steam	Rs.1.90 per patient per day
LPG	Rs.1.42 per patient per day

The cost of space (physical facility) and cost of maintenance staff has not been included,

Equipment Cost After considering the life of the equipment for ten years, the replacement costs and depreciation, the annual cost comes to Rs.2,01,000 and per diet cost Rs.1.38 after taking into account 400 complete diets per day.

Total Costs per Diet:

Material cost	20.00
Labour cost	9.50
Equipment cost	1.38
Allocation cost	2.92
Total	33.80

Food cost control measures (procedures of accounting and operation) at this hospital seem to be reasonably sound which serve management in its efforts to obtain the best results in the purchase, storage, handling, preparation and service of food.

Out of total budget estimates on health in one of the States of India (Andhra Pradesh), only 1-2 per cent has been spent on diet by various public hospitals. The cost of full diet in majority of the hospitals ranges from Rs.4 to 6 per patient per day¹. The hospitals provide low cost nutritious foods to the patients.

Comparing the cost of diet at the hospital under study with public hospitals of Andhra Pradesh, the expenditure was observed to be on the higher side.

CONCLUSION

The food services operation usually accounts for about 3 to 5 per cent of the overall expense budget, but can dramatically affect the community opinion of quality of service provided by the hospital. Presently, the hospital has not been charging separately for the diet and spending approximately 3 per cent of total hospital budget annually. Wise planning, proper use of labour saving devices, bulk purchases and storage, were very essential to keep the cost of diet within permissible limits.

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स्वास्थ्य परिचर्या संस्थानों में वित्तीय प्रबन्ध के लिए लागत विश्लेषण आज एक महत्वपूर्ण उपाय का रूप ले चुका है। अस्पताल के प्रमुख विभागों में आहार प्रबन्ध सेवाओं को बहुत महत्वपूर्ण समझा जाता है तथा अस्पतालीय परिचर्या सेवाओं पर होने वाली कुल लागत का लाभ 3 से 5 प्रतिशत व्यय इन सेवाओं पर किया जाता है। एक तृतीयक स्तरीय मेडिकल इंस्टीट्यूट के बारे में किए गए अध्ययन से यह प्रदर्शित होता है कि अस्पताल द्वारा लगभग प्रतिवर्ष अस्पताल के कुल बजट का 3 प्रतिशत भाग अंतरंग रोगियों को आहार संबंधी सुविधाएं प्रदान करने पर खर्च किया जाता है। प्रतिदिन एक रोगी पर होने वाली लागत लगभग ₹0 33.80 आती है। प्रत्येक रोगी पर होने वाली इस व्यय राशि की तुलना जब सार्वजनिक क्षेत्र के अस्पताल से ही की जाती तो यह पता चलता है कि यह व्यय राशि अपेक्षाकृत अधिक है।

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SCALE OF DIET SERVED

Item	Normal Diet	Soft Diet	Liquid Diet	Therapeutic Diet
Milk	250 ml	750 ml	1350 ml	500 ml
Curd	150 gm	-	-	150 gm
Rice	455 gm	100 gm	-	475 gm
Mutton	125 gm	100 gm	50 gm	125 gm
Pulses	40 gm	-	-	40 gm
Potatoes	50 gm	-	-	50 gm
Tomatoes	100 gm	-	-	100 gm
Bread	5 slices	6	10	4
Mushroom	6	6	-	6
Butter	20 gm	-	-	-
Tea (Lipton)	2 gm	2	2	2
Salt	2 gm	-	-	2 gm
Oil	30 gm	-	-	30 gm
Vegetables	200 gm	200 gm	200 gm	200 gm

Cost of Equipment

Total cost of equipment - Rs.20,09,954 Depreciation cost @ 10 per cent - Rs.2,00,995.40 Equipment cost per day - Rs.550.67 Efficient cost per patient per day - Rs.1.38 Equipment includes:

- Boiling pans with lids (steam operated)
- Perforated containers - industrial trolley and base frame
- Gas range - stainless steel pot wash sink
- Bread slicing machine
- Fat fryer - roller conveyer
- Water Canopies - booster
- Mixing machine - detergent and rinse dry equipment
- Food cutter, potato peeler, cutter holder
- Tilting frying table gas
- Meat chopper - kneading machine
- Dish washing machine - refrigerators
- Food service carts - Dough dividing machine
- Wooden cutting block
- Condensation unit - ventilation hood with panels
- Water pressure raising device

HEALTH CARE FINANCE - CHALLENGES AND RESPONSE

Syed Amin Tabish*

ABSTRACT

Increasing pressure on the resources available for health care have emphasised the need to judge the alternative strategies in planning from an economic perspective. The initiative for struggle lies with those who were really concerned (entire population of the community, especially the underprivileged, whom rights and prerogatives have been usurped by an exploiting class which controls political and economic power) - individuals, groups, non-governmental organisations, voluntary agencies and people's organisations. Local health cooperatives, partial health insurance coverage, taxable and tax-exempt bond financing, limited partnerships, joint ventures, health cess and public-private sharing of the cost of health care have been emerging in response to the need for rationalising health care financing. Financial considerations and investigations of viable alternatives of major importance need urgent attention.

The health care market is in the midst of changes that will revolutionise how medical care will be provided and financed. Emphasis has been shifting from high quality at any price to sufficient medical services in a cost-conscious market. High technology and high finances may be tempered by the involvement of the Government and the industry in the health care decision-making process.

THE TRENDS AND STRATEGIES (IN THE 1990s)

- i. Consumers will be more prudent in making health care purchasing decisions. There will be significant competition among health care providers.
- ii. Access to health care may decline for the medically indigent.

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- iii. An individual's ability to pay may dictate the extent of services provided, patients will depend more on self-diagnosis and self-treatment.
- iv. Community should simply find the means to provide whatever resources and services the health professionals felt were needed.
- v. The principle of equity and social justice is important for achieving Health for All by 2000 AD through primary health care approach.
- vi. How much medical care should be redistributed to different population groups and by what mechanisms?
- vii. The choice of how much medical care to be provided to a particular population group will be affected by the costs of such programmes.

ECONOMIC DETERIORATION (RECESSIONS)

Responses to recessions have commonly been to curtail demand and stimulate exports. Devaluation has often been necessary to support these objectives and to realign exchange rates which have become increasingly unrealistic as domestic inflation exceeds international rates. Reduction in public expenditure (with health sector frequently being cut back at a faster than average rate) has been a common element in such adjustment policies.

ISSUES INVOLVED IN THE FINANCING OF HEALTH CARE IN DEVELOPING COUNTRIES

The issues that need urgent attention are: (i) defining the dimensions of health sector; (ii) identifying and evaluating the sources of health care support; and (iii) analysing the implications of research findings on health care financing.

Given the heavy burden of illness, the scarcity of resources, and the lack of adequate input of previous systems, it becomes obvious that new approaches must be found. Since the conventional patterns of curative, hospital based, high technology medicine do not offer adequate solutions, a growing emphasis is being placed on the promotion of health care, sanitation, education, agriculture, transportation, and community participation in health care planning, stressing the need for utilising previously untapped resources.

The most obvious problem was insufficiency of financial support to provide minimally adequate health care for everyone whosoever needed¹. Solutions to the problems in the long run would require increasing as much as possible the General Tax Ratios to increase the proportion of general tax revenues allocated

to the health sector, to broaden the coverage of Social Insurance or Non-profit Group Health Insurance, to rely more extensively on 'Self-help' at the community level, and to increase Foreign Aid Contributions, preferably in the form of grants rather than loans.

No major increase in the allocation of funds for health care need to be advocated, without also requiring better coordination among the major sources of funds. The most important factor is the coordination between public health and social insurance health care programmes. Many of their facilities overlapping in close geographical proximity on one another and usually they compete for the same limited number of health care professionals.

The problem of inefficiency of current resources utilisation can be resolved in part by increasing the level of financial support and improved administration of scarce resources (Professional Health Care Administrators should be involved in planning and organising of health services at all levels).

For balance in health care (major inequities in the distribution of currently available financial support for health care, a small proportion of the total population-urban elite; receives a disproportionately large share of total funds available, the developing countries should significantly reduce current health care deficiencies by undertaking significant reallocation of resources. This could be accomplished through greater coordination and cooperation among public health and social insurance health care systems.

Developing countries have serious deficiencies in the areas of four basic human needs - food, clothing, shelter and health care, as well as in education and other social services. Additional financial resources have been necessary to satisfy and meet all these needs for all segments of the country's population. Health care thus, competes for additional financial support with other essentials. Allocating more funds to one area should not be at the cost of another. Solutions lie in the direction of recognising that satisfying any one of these needs can have a positive impact also on reducing deficiencies in the others. Inter-sectoral coordination can result in optimal utilisation of existing resources, as well as help to attract new sources of support. Foreign aid agencies have generally been found supportive of efforts to coordinate development programmes in agriculture, education and health care.

The information system, special data gathering efforts were the prerequisite and necessary for planning and policy-making. Such skills need to be developed among the indigenous health care professionals.

IMPACT ON HEALTH STATUS

The structure of the Government health care system in developing countries is elite-oriented, urban based, curative services. Even that system has been under financed. The short to medium term future plans contains the prospects of less Government support for health, and low real growth.

If the Governments priorities do not emphasize the health sector, then either non-government sources need to be increased, or existing resources must be put to optimal utilisation.

This crises have passed through several stages: from rising expectation to stagnation and reversal of plans; from reversal to falling staff morale and service quality; from deteriorating standards to changes in utilisation pattern; and from falling utilisation to partial dereliction.

There is an urgent need for empirical evidence as to the effects on health status of changes in the mode of service provision or financing.

Well conceived policy-oriented research and development, undertaken to provide appropriate, adequate and timely information on the consequences of organisational change, offer one route to skill formation in applied health economics. Developing countries should be very careful to ensure that the running costs and manpower requirements of expensive facilities and equipment can be covered, even when they were offered free through foreign aid, otherwise programmes may be badly distorted or investments poorly used.

Quality and appropriate use of drugs have been of profound importance. They were interdependent with other health service inputs, and that, where overall health expenditures were low, even modest spending on drugs may amount to a large proportion of health budget.

COST AWARENESS

The reasons for the increase in health care costs are multifactorial. The aging of the population and the availability of new diagnostic and therapeutic advances have increased the demand for health care.

The costs of the care are especially influenced by decisions regarding hospital admission and surgery, and by decisions affecting the use of intensive care units, life sustaining treatments, and long-term care facilities

In USA, despite the rising costs, about 15 per cent of the population, do not have health care insurance of any kind, even though nearly half were in households in which some one is employed. This lack of insurance coverage and access to health care is often attributed for the fact that the US, despite its high expenditure on health care, ranks twentieth in the world in infant mortality and does not come in the top ten in life expectancy.

HEALTH INSURANCE

Traditional fee-for-service insurance reimburses the hospital and the physician for services rendered, but frequently does not cover, preventive care. Even when insurance provides coverage for a service, the patient may be responsible for an initial 'deductible' and a copayment, which is usually a fixed percentage of the entire amount charged.

Patients who must pay such out-of-pocket charges for some of their medical care seek less care than those whose care is fully covered by insurance. In the working poor this may result in reduced utilisation of services and in an increase in the prevalence of serious disease. When adults of all socio-economic classes lose health insurance coverage, they may use fewer medical services; as a result their health status tends to decline.

Most alternatives to traditional fee-for-service medical care requires enrolled persons to prepay a fixed premium, which, usually covers acute, chronic and preventive medical services. Prepaid plans have varying organisational and financial structures. In recent times, Independence Practice Associations (IPAs) have shown the most rapid growth by providing prepaid care to inpatients on a prenegotiated fee schedule. To balance the normal fee-for-service incentives and control utilisation. The rate of hospitalisation can be reduced among enrolls in HMOs, and HMOs have been in the forefront to reduce hospital costs and length of stay.

REIMBURSEMENT OF HOSPITALS AND PHYSICIANS

In 1983, medicare introduced a system of prospective reimbursement using DRGs (Diagnostic Related Groups), whereby hospitals were paid a predetermined sum based on the patients principal diagnosis, procedures, complications, and comorbidities regardless of the costs or charges that were actually generated by the hospital stay. This reimbursement system was designed for the known rewarded hospitals for being more efficient, and hospitals could actually be paid more than their costs. Initially, DRGs reported substantial operating surpluses. But after sometime (1986) about 1/3rd of the hospitals reported negative operating balances for medicare patients. While the prospective reimbursement system has

stimulated efficiency, it has also raised concerns about the practice of discharging patients prematurely, if the projected cost of caring for them exceeds the expected reimbursements. This leads to the shift towards ambulatory care to lower the cost of delivering an individual unit of service.

CONTROL OF HEALTH CARE COSTS

Approaches: (i) Regulatory: (a) such as per diem rate setting, attempt to control costs by setting and enforcing practice of reimbursement standards. <b) mandatory second opinions prior to elective hospitalisation or surgery; and (ii) Competitive: encourages hospitals and providers to bid in a free-market atmosphere, in which consumers will presumably make rational choices based on the perceived cost and quality of the available alternatives.

In UK, the National Health Service insurance programme covers hospital and physician reimbursement on non fee-for-service basis, although patients can pay privately for the services outside the system. Patients often must endure long delays for non-emergency procedures.

In Canada, hospitals are paid annual lump sum, and most physicians are paid on a fee-for-service basis via a fee schedule that is negotiated between the medical societies and the provincial governments. The delays for elective services have not been a major problem, and life expectancy is higher than in the US.

HOSPITAL COST CONTROL

The hospital costs can be reduced by following procedures:

Pre-admission Certificate: (i) designed to reduce hospital admissions, shorten length of hospital stay, and encourage prospective review of ancillary services; and (ii) these programmes require patients seeking emergency treatment to receive prior review from a review organisation before payment is authorised.

Ambulatory Services: Inclusion of day care surgery benefits has been strongly endorsed as an effective cost-containment device of providers of health care.

Pre-admission Testing: Procedures such as routine diagnostic examinations, laboratory investigations, and X-rays are more costly. The PAT may contain some qualifications, such as coverage of advance certification of a forthcoming admission. PAT may reduce average length of stay and may save one per cent to two per cent of total claims costs.

Second Opinion Surgery. These programmes have been successful in deterring unnecessary elective surgery, especially high cost, frequently performed procedures.

There are three types of such programmes: voluntary, incentive and mandatory.

Deductibles and Coinsurance: (i) a deductible is a fixed amount by the patient for the services before the insurance plan pays any bills; (ii) under coinsurance, the patient pays a fixed percentage of the pocket costs for a year; (iii) a comprehensive medical plan can combine both deductibles and coinsurance; and (iv) indemnity schedules: the plan pays a fixed amount per service or diagnosis, and the patient is liable for costs above the allowable amount

Short Stay Maternity Benefits: (i) includes physician authorization, physical assessment prior to discharge, cash incentives and additional covered services; and (ii) early discharge improves morale of mothers and promotes cost consciousness.

Hospice, birthing centres, drug and alcohol de-addiction, mental health services.

Efficient Management Techniques.

Introducing competition.

THE VALUE IMPROVEMENT PROCESS

It is a proprietary management consulting technology designed to help hospital better manage their costs. It locates opportunities for cost-savings by re-engineering the health care delivery system. It creates real value improvement, through cost reduction and quality enhancement, and is designed to be an ongoing process, extended by the hospital staff to areas of application beyond the project's initial scope. It has been implemented in various leading hospitals of US and Canada with average annual saving of over and 1,000,000 dollars.

PERFORMANCE BUDGET

The type of budgeting is far superior in dealing with questions concerning the efficient use of resources and the itemwise budget may yield the most appropriate information for the management of hospitals.

FINANCING HEALTH CARE FACILITIES

Approaches to financing of health care include:

- Balance between need, resource and use.
- Substitution among resources.
- Productivity.
- Appropriate selection of targets.
- Unmet needs.

Financing systems will have to take account of.

- Presentation of quality.
- Adequate solidarity.
- Limitation of rules.
- Control of care costs.
- Mitigation of income effects.
- Limitation of weight of marginal changes.
- Budgeting aspects.

It has become necessary for health care institutions to consider an assessment of financing techniques. Techniques that need attention include:

- Taxable and tax-exempt bond financing.
- Public offerings and private placements.
- Limited partnerships.
- Joint ventures, and
- Sales of streams of business to unrelated institutions.

Besides, it seems likely that equity financing for large profit making corporations will continue to be a major source of financing for the most innovative and fast-growing health care institutions.

The health care industry and their investment bankers have been turning to other methods for raising capital, including joint ventures, sales of assets, real estate partnership, conversions from not-for-profit to for-profit form, and stock offerings, it seems that health care companies will utilise an increasing variety of mechanisms to raise capital.

ALTERNATE STRATEGIES

- *Health Cess*: Some percentage (e.g. 2-4%) on purchase of medicines and prescriptions costing more than say Rs.50 (2 U.S. dollars).

- Health surcharge (excise) on non-essential and unethical preparations (tonics, vitamin preparations).
 - Health tax on advertisement of products that are injurious to health (alcohol, tobacco products).
 - Excise duty non-alcoholic beverages etc.
 - Income tax and other tax relief provisions to be simplified and expanded so as to promote the private sector to provide health care facilities to the underprivileged and have-nots.
 - Liberalisation of policies in order to bring the services under the scope of the provisions for tax reliefs. Additional finances developed through new resources should be optimally utilised in health care activities.
 - Public contributions to national fund for preventive and promotive health care can be created and made tax free.
 - The direct contribution of the community or the voluntary organisations to the additional resources for health care in the form of donation of land, equipment and buildings for setting up new facilities and avail of tax concessions.
 - Availability of cheap medicines and donation of the same from the individuals who do not need them and can transfer them before their effectivity is lost.
 - More efficient use of health facilities by allowing certain amount of competition among differently managed health care organisations.
 - More attention to the needs of public to the unorganised sector uncovered by any employment contract, devising ways and means to tap their savings to the health sector and subsidise health care for them from national kitty.
- Introduce self-care programmes with an incentive of tax-exemption.

CAPITATION/USER CHARGES

The introduction of substantial increasing of charges to users of health services is one of the options at present. Additional income is generated with expected improvement in service quality and accessibility. But one major disadvantage is access barrier for poorest (increasing inequalities).

Such studies can demonstrate the relevance of economic concepts such as price and income elasticity of demand to health sector decision makers.

The review of potential savings by doing better reorganising services, or by introducing management improvements has already been shown as a major way of releasing funds within the health sector.

Studies of savings achievable by better purchasing, distribution and prescribing for essential drugs has shown potential economics.

IMPROVING THE VALUE FOR MONEY

To improve value for money in health care there is need for:

- restriction of governmental expenditures,
- cost sharing and greater participation in decision making by the users,
- expansion of primary care,
- change in emphasis from hospital to community care,
- limitation of expenditure on costly procedures (valve replacement, transplantation surgeries) and certain types of new costly techniques (CAT scan, MRI, NMR, DSA etc.) and some costly medicines (anticancer drugs),
- more control and evaluation of the value of new techniques in diagnosis and treatment before their general introduction,
- more emphasis on prevention and health promotion,
- Improvement in socio-economic conditions (raising the standards of living) and quality of life,
- more emphasis on literacy and health education,
- research in specific areas of clinical management,
- early diagnosis and treatment,
- cost awareness among health professionals and public, and

- price competition in research-based pharmaceutical industry (will limit the scope for overpricing).

ALTERNATE HEALTH CARE STRATEGIES

The prepayment models considered most appropriate for a widespread application were health maintenance organisations (HMOs), preferred provider organisations (PPOs), and independent practice associations (IPAs). HMOs and PPOs have been a dramatic departure from traditional health care delivery and financing, because they create financial incentives for health care providers and institutions to reduce the amount and type of services offered.

Health care coalitions are joint public and private sector initiatives for addressing rising health care costs. Business, government and medicine (three group) need to solve the problems jointly. It facilitates the communications and renegotiations between providers, users, and payers in the allocation of health resources for a local area. The principals in coalitions are business, hospital, physicians, medical societies, commercial insurance, blue cross and blue shield, and labour organisations.

POOLED FINANCING

The authorities issue bonds, the proceeds of which are held as pool of funds available to loan to hospitals for eligible purposes. The pooled programmes offer the hospital the opportunity to participate in an existing issues and to avoid the lengthy financing processing of its own.

EVALUATION OF EFFECTIVENESS

Medical and economic evaluation of health care activities, in order to relate effectiveness to costs and to choose between different strategies of care for given conditions (surgical versus conservative treatment, hospital versus home care, inpatient versus day care and varying lengths of stay) is of paramount importance.

EDUCATION AND TRAINING

Training should be relevant and staff motivated:

- more emphasis on identifying needs and priorities,
- specifying the task and manpower required to meet them.

- adapting education and training to meet these specifications in a flexible manner,
- to create new types of staff (multipurpose workers), and
- formulating a comprehensive integrated national health policy.

BALANCE OF DIFFERENT SYSTEMS

Market oriented health systems need some kind of planning, framework, control mechanisms, and information systems. There is a felt need for flexibility and incentives to be built into planned systems. Whatever, controls and health systems have been introduced, they must take into account the predominant values of the concerned country.

There is a felt need for more micro-level research into the functioning and use of health services in order to evaluate the differences that have been revealed but not explained by micro-level research.

Lkkjk'k

स्वास्थ्य परिचर्या के लिए उपलब्ध संसाधनों पर तेज गति से बढ़ते हुए दबावों के परिणामस्वरूप यह आवश्यक हो गया है कि योजना प्रक्रियाओं में आर्थिक परिप्रेक्ष्य को ध्यान में रखते हुए वैकल्पिक रणनीतियां प्रयोग में लाने संबंधी परीक्षण किया गया जाए। इस दिशा में संघर्ष प्रारम्भ करने का दायित्व मूलतः उन लोगों पर है जो वस्तुतः इस क्षेत्र से जुड़े हुए हैं (समूचे समुदाय विशेष रूप से अल्प सुविधा प्राप्त दिया जाता है जो राजनैतिक और आर्थिक नियन्त्रण सम्भाले हुए हैं)— व्यक्ति, गुप गैर सरकारी संगठन और जन संस्थायें। स्वास्थ्य परिचर्या वित्तपोषण की प्रक्रिया को युक्तिसंगत बनाने की आवश्यकता की दृष्टि से ऐसी अनेक संस्थाओं का प्रार्दुभाव हो रहा है जो स्वास्थ्य परिचर्या पर होने वाली लागत में हिस्सा बटा सकती हैं जैसे स्थानीय स्वास्थ्य परिचर्या पर होने वाली लागत में हिस्सा बटा सकती हैं जैसे स्थानीय स्वास्थ्य साझेदारी, संयुक्त प्रयास तथा सामाजिक और प्राइवेट क्षेत्र की साझेदारी। वित्तीय पक्ष और प्रमुख महत्व की कार्यक्षम वैकल्पिक रणनीतियों के बारे में अन्वेषण की ओर तत्काल ध्यान दिए जाने की आवश्यकता है।

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NUTRITIONAL PROBLEMS IN INDIA

Superna Goel*

ABSTRACT

Notwithstanding popular scientific theories highlighted by clinical and laboratory approach to nutrition, it has now been accepted on the basis of large scale surveys that nutritional problems in India emanate from poverty and inequality.

The epidemiological pattern of nutritional deficiency disease has shifted from the more severe manifestations of overt clinical signs to chronic hunger and morbidity. Infections and infestations, and poor maternal and child health are the problems of considerable magnitude.

It is imperative to view nutritional problems in a realistic interrelated manner and not as isolated single nutrient deficiencies. Evidence from secondary material has been sighted to demonstrate the relation of Iron, Vitamin A and Iodine deficiencies to energy and protein intakes and the total level of living.

Nutritional problems in India have been viewed from two divergent approaches: (i) the clinical approach; and (ii) the public health nutrition approach.

Nutrition in clinical and biochemical laboratories has developed high scientific sophistication in basic science research and animal research borrowing concepts, ideas and techniques from the basic sciences - chemistry, physical sciences and medicine¹. The clinical approach has brought out theories of 'protein-gap' and 'nutritional adaptation'^{2-5 & 6-10}. It also focuses on single nutrient deficiencies and their adverse effects on human beings by extrapolating results from rates to humans. Some more recent nutritional problems highlighted by this approach were those caused by selenium deficiency, zinc deficiency, mutagens in food, etc.

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The community or public health nutrition approach has over the years highlighted the problem of basic food deficiency among the poor population of the country. Nutrition surveys carried out under the auspices of Nutrition Research Laboratories, Indian Research Fund Association, Indian Council of Medical Research, Regional Research Units and nutrition divisions of public health had established both a quantitative and a qualitative lack in Indian dietaries alongwith documentation of certain specific deficiency signs distributed over various geographical areas in the fifties itself^{11,13}.

Later epidemiological studies carried out at the National Institute of Nutrition in the seventies had provided evidence of a 'calorie gap' in Indian dietaries^{14,17}. Sukhatme had surveyed data of national food availability and household food habits and interpreted the Indian situation to be one of calorie rather than protein shortage¹⁸.

The quantitative dimensions of the nutrition problem and the socio-economic roots of hunger were for a considerable time sidetracked for the more fashionable qualitative problems (e.g. 'protein gap'¹) emanating from the laboratories usually amenable to technological intervention and recommended by 'neutral' scientific bodies.

For many years rational discussion of the food problem was distracted by undue concentration on the comparative trends in population growth and expansion of food output. In claiming a correlation, between mass starvation and an excessive population growth that outstrips available food supply, the Malthusian theory apparently explained famine through a direct and easily understood causative relationship.

Too many mouths + too little food = famine. A simple but deadly equation. Many prophecies of doom and decline were evident in the writings of the Neo Malthusians^{1^20}. These arguments have such a powerful hold that theories of 'demographic trap' find a receptive audience even in the 1990s²¹.

The debate on the poverty line among economists, nutritionists and planners have also helped sidestep the problems of all those who did not have enough to eat by twisting and tailoring statistics according to their own points of view^{22 27}.

Nutritional problems in India have their roots in poverty and inequality. Poverty which restrains an individual or family to establish command over "commodity bundles with enough food" and inequality which among other things places a disproportionate burden of ill-health and under-nutrition on women and children²⁸.

Large scale nutrition surveys using an All India Sample have been carried out by the National Nutrition Monitoring Bureau (NNMB). These demonstrate a clear correlation between income levels and degrees of malnutrition in the rural population²⁹. Complicated interrelation between infant mortality rates, family size and property holdings have been worked out elsewhere³⁰.

Examination of the recent survey showed, that over the period 1975-79 to 1988-90, there has been little change in average income and status of the population. But still, there has been some respite for the lowest denomination. Thus, the lowest category (PCI < 30 Rs./month) showed a decrease in per cent household³¹.

TABLE 1
PER CENT DISTRIBUTION OF HOUSEHOLDS BY PER CAPITA INCOME

PC 1 (Rs./month)	1975-79	1988-90
No. of HH	5518	5181
<30	32.7	20.6
30-90	48.0	49.4
90-150	10.6	20.4
> 150	8.7	9.6
Average	67.50	63.30

Source: NNMB, (1991), pp. 47, Table 2.

Also, within the various occupational classes in rural India, the mean energy intakes of landless agricultural labourers seem to have been improved over the period 1975-79 to 1988-90.

However, for a majority of the rural population, energy intakes have actually declined. Even for the landless agricultural labourers the intakes were much below the recommended levels. (Which is 3800 calories for heavy work)³².

The classical nutritional deficiency disorders of the yesteryears - Beriberi, Pellagra, Marasmus, Kwashiorkor and even Keratomalacia were also found on the decline³³.

Now-a-days, it has become rare to see frank cases of any of these disorders. The NNMB data showed a drop in the figures of severe malnutrition from 14.4 per cent in 1975-79 to 9.4 per cent in 1988-90.

TABLE 2
MEAN ENERGY INTAKES BY OCCUPATIONAL GROUPS

Period	Landless agricultural labour		Other labour		Cultivators		Others*	
	n	Mean	n	Mean	n	Mean	n	Mean
1975-79	892	2043	1978	2123	4510	2514	3126	2244
1988-90	675	2179	619	2118	2116	2356	1756	2168

* : Includes artisans, traders and salaried group

n : Total number of households surveyed in seven States.

Mean : Simple average of the consumption figures over seven States.

Source: NNMB, (1991), pp. 52, Table 6.

TABLE 3
ENERGY INTAKES OF PRE-SCHOOL CHILDREN BY NUTRITIONAL STATUS

Nutritional Status weight for age (%)	Energy intake		% children	
	1975-79	1988-90	1975-79	1988-90
> 90 (Normal)	1035	1013	3.6	4.6
90-75 (Mild)	995	988	29.3	33.6
75-60 (Moderate)	884	928	52.7	52.4
< 60 (Severe)	812	796	14.4	9.4

Source. NNMB, 1991, pp. 54, Table 9.

Marasmic-cases declined from 1.3 to 0.6 per cent and Kwashiorkor decreased from 0.4 to 0.1 per cent

Similarly, severe forms of growth retardation in children - Stunting and wasting showed substantial reduction.

A National Survey of Blindness carried out under the auspices of the Government of India and WHO showed that no more than 0.04 per cent of all cases of blindness would be attributed to Vitamin A deficiency.

These trends of decline in severe forms of undernutrition in recent years were in sharp contrast to the findings of the earlier large scale surveys of the fifties and sixties. Protein malnutrition then accounted for an appreciable number of child admissions in the hospitals.

TABLE 4

PER CENT PREVALENCE OF NUTRITIONAL DEFICIENCY SIGNS IN PRE-SCHOOL CHILDREN

Nutritional deficiency signs	Period of survey	State								
		Kerala	Tamil Nadu	Karnataka	Andhra Pradesh	Maharashtra	Gujarat	Madhya Pradesh	Oris	Pooled
Dedema	1975-79	-	-	0.4	0.9	0.5	0.3	-	-	0.4
	1988-90	-	-	0.2	-	0.1	1.1	-	-	0.1
Marasmus	1975-79	0.2	0.6	0.5	2.0	0.8	3.8	0.2	0.6	1.3
	1988-90	0.1	0.2	0.4	0.1	0.3	4.9	-	0.1	0.6
Two or more signs of PEM	1975-79	0.2	0.6	2.1	0.9	3.0	0.6	0.2	-	1.2
	1988-90	-	0.1	0.4	0.1	0.3	0.3	-	0.1	0.2
Ritter's spots	1975-79	0.1	2.9	2.3	3.1	0.4	0.9	0.4	1.5	1.8
	1988-90	0.5	0.6	1.1	1.0	0.3	0.5	-	1.1	0.7
Angular stomatitis	1975-79	1.6	5.0	11.8	7.9	1.0	1.5	0.6	5.9	5.7
	1988-90	-	6.3	13.9	9.0	1.3	0.5	-	-	5.7
NAD	1975-79	91.7	84.4	71.9	79.8	86.0	79.7	94.5	76.7	80.7
	1988-90	94.5	73.6	79.2	88.5	67.5	79.4	87.5	96.3	83.5
Number	1975-79	1034	1832	2941	2361	1580	1893	474	660	11775
	1988-90	748	2792	1715	2394	1488	1090	397	911	11535

Source: NNMB, (1991), pp. 59, Table 10.

A compilation of studies of the late sixties in the Nutrition Atlas of India clearly depicts the widespread prevalence of nutritional deficiency disorders both in pictures and figures of frank cases³⁷. While the overt clinical forms of undernutrition were declining, there exists considerable chronic long term hunger. Studies had already demonstrated little change in the average heights and weights of children between the mid-fifties and late seventies³⁸.

TABLE 5

PER CENT DISTRIBUTION OF PRE-SCHOOL CHILDREN ACCORDING TO STANDARD DEVIATION CLASSIFICATION

SD classification according to	Period	N	<-35D	-35D- to 25 D	-25D to -15D	-15D to Median	> Median
Weight /Age	1975-79	6428	38.0	39.5	18.3	3.3	0.9
(under weight)	1980-90	13432	26.6	42.0	24.2	6.0	1.2
Height Age	1975-79	6428	53.3	25.3	14.6	4.8	2.0
(Stunting)	1980-90	13432	36.8	28.3	21.0	9.9	4.0
Weight/Height	1975-79	6422	2.9	15.2	44.3	29.0	8.6
(Wasting)	1980-90	13422	2.4	17.5	44.0	27.6	8.5

TABLE 6

COMPARISON OF MEAN HEIGHTS AND WEIGHTS OF CHILDREN IN TWO STUDIES

Age (years)	Weights (Kg.)				Heights (cms.)			
	Boys		Girls		Boys		Girls	
	1	2	1	2	1	2	1	2
4	13.0	12.5	12.4	12.0	94.5	92.6	93.0	91.1
7	17.6	16.5	17.2	16.4	113.3	109.1	111.8	104.8
13	31.1	27.0	31.2	29.6	143.4	137.6	141.9	138.6

1. ICMR, (1956-57), Class VI Group.

2. NNMB, Urban Slum Study, 1984.

Source: Gopalan, C. (1986) "Nutritional Status of India's Children: Has It Improved in Recent Years?" *NFI Bull*, Vol. 7, No. 1, Table 2.

The National Sample Survey data on per capita calorie intakes in the early seventies when compared to the data obtained in the early sixties showed low intakes in the seventies.

The NNMB reported an increase in mild cases of undernutrition from 29.3 per

Cent to 33.6 per cent as has been shown in Table 3.

Anaemia associated with chronic undernutrition has been a problem of considerable magnitude. It is prevalent especially among pregnant women (85%) and pre-school children (63-71 %). Even among adult men, anaemia is not uncommon, between 35-40 per cent having low levels of circulating haemoglobin

Considerable morbidity exists due to chronic interdependent nutritional problems. Nutritional deficiencies are known to co-exist and have a common cause, i.e. lack of food and superimposed infections and infestations. It has generally been accepted that the infection, usually in the form of diarrhoeas,

TABLE 7

LEVELS OF CALORIE INTAKE IN THE EARLY SIXTIES AND SEVENTIES, RURAL AREAS

States	Calorie intake per capita			Percentage increase (+) or decrease (-) over 1961-62	
	1961-62	1971-72	1973-74	1971-72	1973-74
1. Rajasthan	3147	2586	2719	-17.82	-13.60
2. Punjab	3076	2954	2815	-3.97	-8.49
3. Haryana	-	2874	2971	-	-
4. Jammu & Kashmir	3033	2793	2742	-7.91	-9.59
5. Madhya Pradesh	2910	2852	2422	-1.99	-16.77
6. Uttar Pradesh	2854	2407	2450	-15.66	-14.15
7. Karnataka	2758	2054	2211	-18.27	-19.83
8. Gujarat	2503	2295	2180	-6.31	-12.90
9. Maharashtra	2280	2033	2044	-10.83	-10.35
10. Bihar	2591	2178	2186	-14.29	-13.97
11. Orissa	2375	2017	2125	-15.07	-10.53
12. Assam	2354	2132	2105	-9.43	-10.58
13. Andhra Pradesh	2184	2118	2209	-3.02	+1.14
14. West Bengal	2175	1860	2070	-14.48	-4.83
15. Tamil Nadu	2147	1910	2012	-11.04	-6.29
16. Kerala	1631	1610	1534	-1.29	-5.95
INDIA	2511	2168	2328	-13.65	-7.29

Source Col. 1: Poverty, Unemployment and Development Policy, Table 3, p. 15. Col. 2 & 3: NSSO, *Sarvekshana*, Vol. II, No. 1, July 1978, Table 4, p. 5.

Exacerbates malnutrition, and that undernutrition influences duration and severity of illness rather than incidence rates of infection. Another researcher has further highlighted the cumulative result of poverty, undernutrition and neglect of

girls in the countryside. These have been reflected in poor adult body size. Almost 24 per cent women in reproductive age group have body weights below 38 kgs. And 16 per cent have heights below 145 cms. - "cut off" points below which they are at risk of obstetric difficulties. Nutritional deficit, exacerbated by repeated closely spaced pregnancies creates a phenomenon which places both mother and infant at high risk of death. Indeed the most common cause of maternal deaths are closely associated with malnutrition particularly anaemia.

A major outcome of inadequate maternal nutrition is 'low birth weight'. The incidence of this problem continues to be extremely high in India. Incidence rates ranging from 25.9 to 56.9 per cent in urban slums and 35.2 to 40.8 per cent in rural communities have been reported. The same study found a strong correlation between low birth weight, and low maternal weight, height, weight gain and hemoglobin levels.

While it is difficult to find data on the above mentioned important area of morbidity due to multi-factorial interactions, considerable information has been brought together on single nutrient deficiencies.

Starting from the fifties and till the seventies the figures quoted for goitre prevalence in India were 40 million people exposed with 9 million having goitre⁵³. Then in the eighties, there was a quantum jump in the estimates. New endemic areas were discovered and based on surveys conducted in different parts of the country. Though different people give a variety of figures, it is believed that exposed population is about 120 million with goitrous population of 40 million. In the supposedly new endemic areas being uncovered, endemic cretinism has not been seen at all but still 'subcretinous brain damage' leading to varying degrees of mental retardation in 15 per cent of children has been reported. Mild or moderate endemicity is infact what is indicated in various surveys.

Cross lacunae in the epidemiological understanding of specific deficiency diseases have been found. A combination of factors has also been responsible in the aetiology of each. It would be more relevant to delineate the interrelationship of these specific food factors with calories and proteins as well as the total level of living in which socio-economic and environmental factors have a major role to play.

Energy and iron intakes on Indian diets are highly correlated. Apart from inadequate content of iron, reduced intake of food which is widely seen among the poor in the country further reduces daily iron intake. This is particularly so among young children, women and pregnant women. It has been shown that true iron content of habitual diets can meet the iron requirement of adult men, children of one to six years and lactating women provided their dietary intakes meets their

Energy requirements

Also, severe undernutrition and anaemia have been the most commonly associated findings. Studies on pre-school children had evidence suggestive of iron deficiency in association with PEM. Association of anaemia and infections has also been implicated.

Xerophthalmia occurs against the background of poverty, ignorance and defective dietary practices. Dietary deficiency of Vitamin A has been one, but not the only one of the factors responsible for Xerophthalmia, for, infectious diseases (particularly measles) plays an important contributory role. Oomen in the early fifties had mentioned that Xerophthalmia was a major complication of malnutrition in Indonesia. Oomen, McLaren and Escapini published the results of a global survey of hypovitaminosis A, a decade later. This clearly established the association of Xerophthalmia with PCM.

In India, Venkatachalam and Gopalan reported that 36 per cent of Kwashiorkor cases in Coonoor in the State of Tamil Nadu and 32 per cent of those seen in Hyderabad in the State of Andhra Pradesh had associated Xerophthalmia. However, Patwardhan and Kamel explained this frequent association by demonstrating that epidemiology of hypovitaminosis A was analogous to that of Protein Calorie Malnutrition.

Xerophthalmia not only complicates EPM, but malabsorption, interference with the synthesis of retinol binding protein and possibly other derangements of vitamin A metabolism and function accompany severe malnutrition. This is further reflected in altered plasma and liver levels of vitamin A in EPM.

Endemic goitre too, has been a problem with socio-economic, developmental and ecological causes. Sir Robert McCarrison had concluded years ago that endemic goitre was a disease of complex etiology being related to infection with the coliform group of intestinal organisms and to faulty and unbalanced diets⁷⁰. Environmental factors caused by ecological disturbances and increased use of chemical additives in processed foods have now been recognised as links in the iodine deficiency syndrome. Flooding, deforestation and soil degradation related to the newer agricultural technologies have been causing iodine depletion of the soil. Goitre has also been related to development. It has been noted in Mexico that the simple measure of building a road in an inaccessible area resulted in more food exchanges and disappearance of endemic cretinism.

These links reiterate the fact that hunger has socio-economic and ecological roots. Nutritional problems cannot be seen in isolation as mere physiological deficiencies of single nutrients. An epidemiological and sociological approach has

Become necessary to put nutritional problems in a proper perspective.

Lkkjk'k

पोषण के संबंध में क्लिनिक तथा प्रयोगशालीय एप्रोच के माध्यम से प्रतिपादित वैज्ञानिक सिद्धान्तों के बावजूद भी वृहत स्तर पर संचालित सर्वेक्षण के आधार पर अब यह स्वीकार किया जा चुका है कि देश में पोषण संबंधी समस्याओं का प्रारुभाव गरीबी और असमानताओं से होता है।

पोषण की कमी के कारण होने वाली बीमारियों संबंधी एपीडेमियोलॉजीकल शैली में अब परिवर्तन आ चुका है, जहां पहले क्लिनिकल निदान पर अत्यधिक जोर रहता था वहां अब यह समस्या भूख और बीमारी से जुड़ गयी है। संक्रमण और मातृ-शिशु स्वास्थ्य का निम्न स्तर ऐसी गम्भीर समस्यायें हैं जिन पर विचार करने की आवश्यकता है।

यह बहुत महत्वपूर्ण है कि पोषण संबंधी समस्याओं को व्यवहार्य तथा एकीकृत ढंग से देखा जाए न कि केवल इसे पोषण आहार की कमी के रूप में एकल दृष्टि से देखा जाए। गौण आंकड़ों से पता चलता है कि आहार में ऊर्जा तथा प्रोटीन की कमी से पूरा जीवन स्तर प्रभावित होता है।

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MTP IN INDIA: AN OBSERVATION

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Abstract

An attempt has been made in the present study to know the prevalence of abortion during the period 1976-77 and 1988-89 in the major States of India. In addition, abortions done during 12-20 weeks of pregnancies and the major reasons given by these women who opted for abortion have also been analysed. The corresponding information have been collected from the Family Welfare Book, published by the Government of India. The results revealed that, the incidence of abortion has been declining over the years. While, abortion has been found to be high in Maharashtra and low in case of Karnataka, the abortion ratio has been found to be high in Tamil Nadu and low in the State of Andhra Pradesh. The study, further revealed that, there has been a decline in the percentage of those opting for abortion at their later duration of pregnancy. And, failure of contraception has been the major reason given by those who opted for the abortion in both 1976-77 and 1988-89. The study recommended that both the Government and non-governmental organisations should join hands together to propagate the usefulness of family planning methods than induced abortion (except in case of unavoidable circumstances) to limit the family size. Hence, the quality of the family planning services should be improved. Further, in case of unavoidable circumstances, awareness should be created to opt for abortion earlier through health education, with the support of the existing mass media and through midwives especially in the rural areas.

Since times in memorial regardless of moral or legal sanctions women have been opting for abortion to terminate unwanted pregnancies. Abortion is the expulsion or removal of the products of conception from the uterus before the 28th week of pregnancy and induced abortion is a deliberate termination of a pregnancy either legally or illegally. And, abortion which should be the last resort as a method of family planning was legalised in India through the Medical

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Termination of Pregnancy Act, in 1971. Although, abortion has been prevalent in the world, its impact on the health of the women has been discussed to a greater extent by the researchers. Behind each induced abortion, there has been a host of social, emotional and occasionally medical problems, but when performed illicitly and complicated by haemorrhage, trauma and infection, induced abortion becomes a major public health problem¹. It has been generally felt, that the mortality and morbidity risks of abortion depended mainly on the characteristics of the women, e.g. age and duration of pregnancy. For instance, it has been noted that abortion performed after 18 weeks of pregnancy has a mortality rate that is 20 times greater (or more) than that the abortions performed before eight weeks². According to the reports of the Registrar General of India (1983), in rural areas 10.7 per cent of the maternal deaths were due to abortion (Health Information of India, 1986).

Keeping this in view an attempt has been made in this paper: (i) to know the situation of MTP during the period 1976-77 to 1988-89, (ii) to understand the MTPs done during 12-20 weeks of pregnancy; and (iii) to study the major reasons given by the women who had opted for MTP.

For the same purpose, the major States of India have been considered as the unit of analysis and the corresponding information has been collected from the Family Welfare Year Book of 1976-77 and 1988-89, published by the Government of India.

The year-wise Medical Termination of Pregnancy (MTP) figures for India as a whole for the period 1976-77 to 1988-89 has been given in Table 1 alongwith their exponential growth rates. The absolute figures of abortion in India have shown an increasing trend over the years, i.e., from 278,870 in 1976-77 to 582,156 in 1988-89. However, the growth rates revealed a declining trend in the incidence of abortion. And, especially in the recent years, i.e., during 1987-88 and 1988-89, a negative growth rate has been observed. This clearly indicated that the importance of contraceptive methods over induced abortion has been realised by the masses over the years.

The share of the major State's to the total abortions of India for the period 1976-77 and 1988-89 have been depicted in Table 2. Figures of 1988-89 have shown that nearly two-fifths of the Indian abortions occur in the State of Maharashtra and Uttar Pradesh. In comparison with the earlier period, i.e. 1976-77, it has been further observed that an increase in the share of Maharashtra, Orissa, Rajasthan and Uttar Pradesh towards the occurrence of MTP in India, while rest of the States have shown declining trend. Orissa State have shown a greater than doubling in abortion in 1988-89. In 1988-89, the share of MTP has been observed to be on the higher side in Maharashtra and low in case of Karnataka.

TABLE 1**MTP IN INDIA OVER THE YEARS**

Years	No. of MTP Cases	Exponential Growth Rate (%)
1976-77	278,870	—
1977-78	247,049	-12.8
1978-79	317,732	25.2
1979-80	360,838	12.7
1980-81	388,405	7.4
1981-82	433,527	11.0
1982-83	516,142	17.4
1983-84	547,523	5.8
1984-85	577,931	5.4
1985-86	583,704	1.0
1986-87	588,406	0.8
1987-88	584,870	-0.6
1988-89	582,156	-0.5

TABLE 2**PERCENTAGE OF STATE'S SHARE TO TOTAL ABORTION CARRIED OUT IN INDIA**

Major States	Percentage of Total Abortion	
	1976-77	1988-89
Andhra Pradesh	4.1	2.4
Guarat	5.9	3.4
Karnataka	4.1	1.9
Kerala	9.4	4.0
Madhya Pradesh	5.2	5.1
Maharashtra	10.8	20.5
Orissa	2.4	4.6
Punjab	2.8	2.8
Rajasthan	2.9	3.5
Tamil Nadu	14.0	9.7
Uttar Pradesh	18.5	18.9
West Bengal	7.2	6.8

MTP ratios i.e. MTPs per 1000 eligible women in the age-group 15-44, calculated for the States of India have been given for both the periods in Table 3. The MTP ratio was 5.6 per 1000 eligible couples in 1976-77 for the country as a whole, which declined to 4.5 in 1988-89. The figures revealed that in 1976-77, the ratio was high in Kerala and low in case of Andhra Pradesh. In 1988-89, Andhra

Pradesh retained its position, while Tamil Nadu by replacing Kerala, was the only State with highest abortion ratio, as compared to rest of the States. On the whole, while considering both the periods, it was observed that there has been an increase in the ratio over the years in majority of the Indian States, though a decline was observed over the years.

TABLE 3
ABORTION RATIO PER 1000 ELIGIBLE WOMEN

Major States	Abortion Ratio Per 1000 Eligible	
	1976-77	1988-89
Andhra Pradesh	1.3	1.2
Gujarat	3.1	2.6
Karnataka	2.0	1.5
Kerala	7.2	5.1
Madhya Pradesh	1.7	2.6
Maharashtra	3.0	9.3
Orissa	1.6	5.4
Punjab	3.4	5.3
Rajasthan	1.4	2.7
Tamil Nadu	4.9	5.9
INDIA	5.6	4.5

Generally, abortion of pregnancy above three months was considered unsafe to the health of the mother. Table 4 shows that how far MTPs have been done in the different States of India during 12 to 20 weeks of pregnancy. During 1976-77, it was encouraging to note that, more than three-fourths of the MTPs have been carried out at the early (less than 12 weeks) duration of pregnancy itself in the country. And, the situation has further been improved, i.e. nearly 85 per cent of the women have aborted in the early pregnancy during 1988-89. In case of different States of India, there has been a significant decline in almost all the States, except in the State of Maharashtra and Punjab and the MTPs done at the later stage of pregnancy during 1976-77 and 1988-89. Among the States, Maharashtra followed by Andhra Pradesh revealed that higher percentage of abortions have been carried out at the duration of 12-20 weeks of pregnancy, when compared to rest of the Indian States.

Informations on the socio-economic characteristics of the women opting for abortion at the later duration of pregnancy may be of great help in determining the reasons for the delay and planning appropriate remedial measures for the same.

TABLE 4

PERCENTAGE OF ABORTION DONE IN THE LATER (12-20 WEEKS) DURATION OF PREGNANCY

Major States	Abortion in 12-20 weeks duration of	
	1976-77	1988-89
Andhra Pradesh	27.1	21.5
Gujarat	15.7	12.0
Karnataka	26.6	16.0
Kerala	19.3	5.9
Madhya Pradesh	23.7	18.1
Maharashtra	22.8	25.8
Orissa	15.6	7.8
Punjab	10.6	19.4
Rajasthan	16.4	9.7
Tamil Nadu	29.4	10.4
INDIA	21.8	15.0

But these informations were not available in the Family Welfare Year Book, published by the Government of India⁴. However, a study carried out by Indian Council of Medical Research involving 13 post-graduate teaching hospitals from different regions of India from 1975-77 revealed that: (a) Unmarried women, widows or separated women sought MTP during the second trimester than compared to married women; (b) Only illiterate as compared to educated women sought MTP in the second trimester; (c) Women with low per capita income reported for MTP than their counterparts during second trimester; and (d) Women who had previously used some form of contraception had reported more often during the first trimester of pregnancy than those who did not use any form of contraception. This has revealed to some extent that, the socio-economic background of the women has an effect on the duration of pregnancy at the time of MTP.

Although, various reasons were given by the women for the need of abortion, the five major reasons given by them were (as grouped by the Government of India):

1. Failure of contraception,
2. Grave injury to physical health,
3. Grave injury to mental health,
4. Governmental reasons, and

5. Danger of life.

The share of these reasons to the abortion for the period 1976-77 and 1988-89 for the States have been calculated and shown in Table 5 and 6. Among the reasons cited by the aborted women, two-fifths expressed that they had been for abortion, due to the failure of contraceptives in 1976-77. The other two important reasons were grave injury to physical health and environmental reasons. In 1988-89 too, the same picture prevailed in India.

TABLE 5
REASONS FOR TERMINATION: 1976-77

Major States	REASONS FOR TERMINATION (IN % TO TOTAL ABORTION)				
	1	2	3	4	5
Andhra Pradesh	12.3	12.9	38.8	22.4	9.2
Gujarat	58.4	5.4	6.7	20.6	2.6
Karnataka	39.0	23.8	12.7	-	12.1
Kerala	29.9	5.8	5.1	53.7	0.5
Madhya Pradesh	43.4	8.2	8.6	31.0	2.9
Maharashtra	62.5	5.7	8.5	17.2	1.7
Orissa	60.7	12.9	6.2	2.2	10.3
Punjab	51.6	10.4	6.3	21.4	8.1
Rajasthan	25.9	17.4	11.7	40.4	1.6
Tamil Nadu	10.6	19.5	9.0	49.6	3.5
Uttar Pradesh	61.0	9.2	2.7	17.1	4.8
West Bengal	23.7	16.4	17.7	14.6	6.4
INDIA	39.3	12.0	10.4	26.0	5.1

Note: 1 refers failure of contraceptives
2 refers grave injury to physical health
3 refers grave injury to mental health
4 refers environmental reasons
5 danger to life

The major reason cited for going for abortion, i.e., Failure of Contraceptives", has been examined for the different States of India. Table (5,6) revealed that, in States of Andhra Pradesh, Gujarat, Orissa, Rajasthan, Tamil Nadu, Uttar Pradesh and West Bengal, the percentage of aborted cases, due to the failure of contraceptives has declined, while in rest of the States, an increase has been observed. The State of Maharashtra in 1976-77 and Punjab in 1988-89, exhibits, higher percentage of abortions due to the failure of contraceptives. On the other hand, Tamil Nadu has the lowest percentage of aborters due to this reason, in both the time periods. Thus, it can be said that by improving the quality of family

Planning services, the failure of contraceptives can be reduced. And, thereby the people can be motivated to use the family planning methods more efficiently than opting for abortion.

TABLE 6
REASONS FOR TERMINATION: 1988-89

Major States	REASONS FOR TERMINATION (IN % TO				
	1	2	3	4	5
Andhra Pradesh	6.2	34.0	17.0	21.9	15.3
Gujarat	34.7	10.8	9.0	26.7	11.4
Karnataka	42.1	14.5	10.4	0.0	26.3
Kerala	41.4	8.2	18.5	18.6	3.6
Madhya Pradesh	51.2	20.3	8.8	0.0	9.5
Maharashtra	65.9	13.3	9.4	0.0	4.9
Orissa	37.1	27.6	13.9	0.0	14.5
Punjab	93.0	2.4	1.5	0.0	1.1
Rajasthan	12.6	21.9	9.1	42.7	8.5
Tamil Nadu	1.4	35.7	27.2	0.0	26.7
Uttar Pradesh	41.8	14.7	9.4	19.4	7.8
West Bengal	11.0	13.4	25.0	0.0	23.5
INDIA	39.1	17.1	13.3	10.1	11.4

Note: 1 -5 refers to reasons as mentioned in the earlier table.

Conclusion

The following conclusions can be drawn from the ongoing discussion:

1. The incidence of MTP is declining over the years.
2. MTP is found to be high in Maharashtra and low in case of Karnataka.
3. MTP ratio is found to be high in Tamil Nadu and low in the State of n Andhra Pradesh.
4. There has been a decline in the percentage of those opting for MTP at their later duration of pregnancy.
5. Failure of contraception is the major reason given by those who opted for MTP in both 1976-77 and 1988-89.

Recommendations

Governmental and non-governmental organisations should join hand together to propagate the usefulness of family planning methods than induced abortion

(Except in case of unavoidable circumstances) to limit the family size. For the same, as a first step, the quality of the family planning services rendered by the Government should be improved.

In case of unavoidable circumstances people should be advised to go for abortion in the early duration of pregnancy, so as to avoid the risk to the health of the women and thereby the maternal deaths. Thus, awareness should be created to opt for MTP earlier through health education with the support of the existing mass media and through midwives especially in rural areas.

Lkkjk'k

प्रस्तुत अध्ययन के माध्यम से 1976-77 तथा 1988-89 की अवधि में भारत के प्रमुख राज्यों में गर्भपात की स्थिति का जायजा लेने का प्रयास किया गया था। इसके अतिरिक्त, गर्भपात करने के पश्चात 12 से 20 सप्ताह की अवधि में गर्भपात कराने वाली महिलाओं द्वारा बताये गये प्रमुख कारणों का विष्लेषण करने का भी प्रयास किया गया है। इस अध्ययन से संबंधित सूचनाएं भारत सरकार द्वारा प्रकाशित "फैमिली वेलफेयर बुक" नामक पुस्तक से एकत्रित की गई थी। प्राप्त परिणामों से पता चलता है कि गत वर्षों में गर्भपात संबंधी घटनाओं में गिरावट आई थी। जबकि महाराष्ट्र में गर्भपातों की संख्या उच्च तथा कर्नाटक में कम पायी गई थी। वहीं तमिलनाडू में गर्भपात का अनुपात उच्च पाया गया था और आन्ध्र-प्रदेश में यह अनुपात कम था। अध्ययन से आगे यह भी पता चला है कि गर्भावस्था के परवर्ती चरण में गर्भपात के लिए विकल्प चाहने वालों की प्रतिशतता में कमी आई थी। यह भी पाया गया था कि 1976-77 तथा 1988-89 की अवधि में जिन लोगों ने गर्भपात के लिए विकल्प दिए थे उनका प्रमुख कारण गर्भ-निरोधक की असफलता होना पाया गया था। अध्ययन द्वारा यह सिफारिश की गई है कि सरकारी तथा गैर सरकारी दोनों प्रकार के संगठनों द्वारा प्रेरित गर्भपात पर बल देने की बजाय परिवार नियोजन विधियों की उपयोगिता का प्रचार किया जाना चाहिए ताकि परिवार सीमित रखा जा सके। इसलिए, परिवार नियोजन सेवाओं की क्वालिटी में सुधार लाया जाना चाहिए। इसके अतिरिक्त, स्वास्थ्य शिक्षा के माध्यम से वर्तमान जन माध्यमों के समर्थन और विशेषकर ग्रामीण क्षेत्रों में मिड वाइफस के सहयोग से अपरिहार्य स्थितियों में गर्भपात को बढ़ावा देने के लिए लोगों में जागरूकता लाई जानी चाहिए।

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ASSESSMENT OF TRAINING NEEDS OF ANGANWADI WORKERS IN RELATION TO INFANT FEEDING

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ABSTRACT

The present study was conducted to assess the training needs of AWWs in relation to infant feeding. Anganwadi Workers (n = 82) working in field practice areas of Preventive and Social Medicine, Department of LHMC, New Delhi were included.

A pretested semi-structured questionnaire covering different aspects of breast feeding and weaning was administered to them. Majority of them responded correctly about (a) initiation of breast feeding (98%), (b) feeding colostrum (98%), (c) superiority of breast milk over commercial milk preparations (98%), (d) age of introduction of semisolids (98%), and (e) unhygienic bottle feeding a major cause of diarrhoea (95%).

Different incorrect responses were (a) top milk should be diluted (43%), (b) bottle feeding should not be avoided (52%), (c) wet (surrogate) nursing is harmful (60%), and (d) breast feeding is not beneficial for health of the mother (41%).

Sixty six per cent, 41 per cent and 24 per cent AWWs responded incorrectly that breast feeding should be stopped if the mother is suffering from tuberculosis, malaria and diarrhoea respectively in the light of these findings training of AWWs in relation to infant feeding should be modified. There is need for continuing education of AWWs for updating their knowledge.

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Anganwadi workers (AWWs) are most peripheral workers under Integrate Child Development Services (ICDS) system. Working for a population of 100(they provide first level health care particularly in rural areas and peripheral urba areas. Females seek their advice in health matters including Maternal and Chil Health (MCH) care services. They formed an important link between community and health care delivery system.

Breast feeding has been an important tool for better child survival. In our country, mass media like TV, Radio, Newspapers and Women's magazines have been increasingly used to emphasise the importance of breast feeding. AWW also play an important role in spreading knowledge about nutrition including breast feeding and weaning. The health and nutrition advice given by AWWs has been more readily accepted by the mothers because they share the same socio-cultural environment as that of their beneficiaries.

The training curriculum of AWWs includes MCH care. It is, however, no very clear as to how much of the knowledge that they acquire during training actually finds place in their day-to-day work and how much of it they retain over the passing years. The present study was, therefore, undertaken to assess the training needs in relation to breast feeding so that they can provide correct upto date knowledge to their beneficiaries.

MATERIALS AND METHOD

The present study was conducted in ICDS blocks in the field practice areas of Preventive and Social Medicine Department of Lady Hardinge Medical College, New Delhi. All the AWWs who attended the meeting with their supervisors, on the day of survey, were included in the study. They were briefed about the objectives of the study. A pretested semistructured questionnaire about breast feeding and weaning was administered to each AWW. Each question was read out and explained by investigators for better comprehension. Any queries raised by them were clarified. Steps were taken to avoid consultation among AWWs. In all 82 AWWs were included in the study.

RESULTS

The responses pertaining to knowledge and attitude about breast feeding have been shown in Table 1.

TABLE 1

KNOWLEDGE AND ATTITUDE OF ANQANWADI WORKERS RELATED TO BREAST FEEDING

		Desired Answer	Correct Response	
			No.	%
1.	Cow's milk b best substitute if mother fails to lactate	True	81	99
2.	Breast feeding should be started immediately after birth	True	80	98
3.	Colostrum should be given to the baby	True	80	98
4.	Breast milk is superior to commercial milk preparations	True	80	98
5.	Mother and child develops love and affection is better with bottle feeding	False	77	94
6.	Lactating mother should consult a doctor before taking medicines, as their secretion In breast milk may harm the child	True	77	94
7.	No significant difference exists in quality of milk of healthy and malnourished mothers	True	71	67
8.	Child should be burped after every feed to avoid regurgitation	True	62	76
9.	Prolonged breast feeding disfigures the breast	False	61	74
10.	Size of breast determines the quantity of breast milk secretion	False	52	63
11.	Baby should not be breast fed outside home	False	52	63
12.	Mother should breast feed on demand	True	46	56
13.	Bottle feeding should be totally avoided	True	39	48
14.	Wet (Surrogate) nursing is harmful	False	33	40

Almost all of them (98%) responded correctly about time of Initiation of breast feeding, feeding colostrum and superiority of breast milk over commercial milk preparations. Most of them knew that lactating mother should consult a doctor before taking drugs (94%) and quality of milk doesn't differ significantly among healthy and malnourished mothers (87%).

About half of them were not aware about harmful effects of bottle feeding. More than one-third of them responded incorrectly that size of the breast determines the quantity of milk. About one quarter even believed that prolonged breast feeding disfigures the breast.

The responses in relation to advantages of breast feeding and disadvantages of bottle feeding have been given in Table 2.

TABLE 2

RESPONSES RELATED TO ADVANTAGES OF BREAST FEEDING AND DISADVANTAGES OF BOTTLE FEEDING AMONG ANGANWADI WORKERS

		Desired Response	Correct Response	
			No.	%
1.	Mother and child affection is better with breast feeding	True	80	98
2.	Unhygienic bottle feeds are a major cause of diarrhoea	True	78	95
3.	Breast feeding is more economical than animal milk feeding	True	76	93
4.	Antibodies/Protective substances are present in breast milk	True	76	93
5.	Solely breast fed infants are less susceptible to diarrhoea than bottle fed infants	True	62	76
6.	Bottle feeding is less convenient for mother	True	58	71
7.	Breast feeding is beneficial for health of the mother	True	48	59

Most of them (93% and above) knew that mother and child develops better affection with breast feeding. Breast feeding is more economical, contains protective substances. The bottle feeding is unhygienic and a major cause of diarrhoea.

Many of them (41 %) thought that breast feeding is not beneficial for health of the mother. Even more than 1/4th believed that bottle feeding is more convenient. The responses in relation to duration of breast feeding and weaning have been depicted in Table 3.

TABLE 3

RESPONSES RELATED TO DURATION OF BREAST FEEDING AND WEANING

		Desired Response	Correct Response	
			No.	%
1.	Appropriate age for introducing semisolids is 4-5 months of age	True	80	98
2.	Breast feeding should be continued as long as possible	True	74	90
3.	Breast milk is best upto 4-5 month of age	True	74	90
4.	Katori and spoon is better than bottle	True	73	89
5.	Top milk given to the child above 4 months should be diluted	False	47	57

Almost all of them knew the appropriate age for introduction of semisolids and superiority of katori and spoon feeding over bottle feeding.

About half of them did not know that milk should not be diluted. The responses regarding feeding during illness of mother and child have been shown in Table 4.

Most of the AWWs responded correctly that if the child is sick breast feeding should not be stopped.

About half of them didn't know that during diarrhoea breast feeding should be more frequent Almost half to two-third of them responded that if mother is

suffering from diseases like diarrhoea, fever or tuberculosis, she should not breast feed the baby which is incorrect.

TABLE 4

RESPONSES RELATED TO FEEDING DURING ILLNESS OF MOTHER AND CHILD

		Desired Response	Correct Response	
			No.	%
1.	If child is having diarrhoea breast feeding should be stopped	False	75	91
2.	Breast feeding should not be stopped if the child is having fever	True	61	74
3.	During diarrhoea, breast feeding should be given more frequently to combat loss of fluids	True	50	61
4.	Mother should continue breast feeding if she is suffering from			
	a Diarrhoea	True	50	61
	b Malaria/Fever	True	39	48
	c Tuberculosis	True	28	34
	d Cancer breast	False	16	20

Discussions

Successful-breast feeding not only depends upon a willing mother but it has also been influenced by the advice of health care workers. In India, the declining trend of breast feeding noticeable before 1970, has been to some extent being replaced by an upward trend possibly due to intensive campaigning on promotion of breast feeding by national and international health agencies and also through education by health care workers. Earlier studies have reported that when workers involved in health activities were highly motivated and had correct knowledge, there was favourable influence on breast feeding practices in the community. Present study was conducted to assess the training needs of AWWs related to infant feeding if any, so that they can work effectively for their beneficiaries.

The study revealed some encouraging findings. Majority of them knew the right time for initiation of breast feeding, importance of feeding colostrum, superiority of breast milk, importance of burping, appropriate age for introduction of semisolids etc. This may be due to their training with or without refresher courses conducted in the past. It may also be due to infant feeding messages delivered through mass media like television and radio during recent years. Similar observations were reported by auxiliary nurse midwives.

In spite of the fact that they had inadequate knowledge of some aspects related to breast feeding and weaning. About 52 per cent of them did not attach any significance to bottle feeding. About 40 per cent thought that size of breast determines the quantity of breast milk secretion and baby should not be given breast feed outside home. About 30 per cent wrongly believed that prolonged breast feeding disfigures the breast. This is contrary to the scientific concepts. These misconceptions may be due to social values attached to infant feeding.

About half of them responded that dilution of milk is necessary for easier digestion. Bafna et al have reported similar observations among physicians. The undiluted milk for infant has been traditionally considered heavy for easy digestion in infants.

Regarding infant feeding and maternal and childhood illness, their knowledge was also deficient. Upto 40 per cent didn't know that during diarrhoea child should be given frequent feeds. About 40 per cent thought that maternal diarrhoea is a contraindication to breast feeding. More than half to two-third of them thought that if mother is having fever or tuberculosis she should not breast feed her baby. Similar findings were also reported by other scholars.

They may not have acquired this knowledge during their training or that may have decreased over the time. The incorrect knowledge delivered and practised by these peripheral workers has been very much detrimental to the community. Traditionally, cultural practices have played an important role in infant feeding practices. Coupled with ignorance, childhood malnutrition, particularly in rural poor has played a key role in increasing infant mortality. The role of peripheral workers in this aspect cannot be over emphasized. Their training should be appropriately modified on the various training needs assessed and there should be inservice continuing education for updating their knowledge with recent advances in field of nutrition.

Training Needs: (1) Misconceptions related to breast feeding e.g. disfigurement of breasts after feeding, quality of milk in malnourished women etc., (2) Norms of dilution of top milk in early infancy, and (3) Changes in infant feeding practices during illness.

Lkkjk'k

प्रस्तुत अध्ययन का संचालन शिशु आहार के संदर्भ में आंगनबाड़ी कार्मिकों की प्रशिक्षण संबंधी आवश्यकताओं का अनुमान लगाने के लिए किया गया था। इस अध्ययन के अन्तर्गत लेडी हार्डिंग मेडिकल कालेज, नई दिल्ली के निवारक तथा सामाजिक औषधि विभाग के तहत क्षेत्राभ्यास क्षेत्र में कार्य कर रहे आंगनबाड़ी कार्यकर्ताओं (एन-82) को शामिल किया गया था।

स्तनपान तथा स्तन्य विमोचन आदि पक्षों के बारे में सूचनाएं प्राप्त करने के लिए इनके कार्यकर्ताओं को एक पूर्व परीक्षित प्रश्नावली वितरित की गई थी। अधिकांश कार्मिकों द्वारा निम्नलिखित पक्षों के बारे में सही प्रत्युत्तर दिए गये थे: क- स्तनपान आरम्भ कराना (98 प्रतिशत), ख- क्लोस्ट्रम आहार (98 प्रतिशत), ग- डिब्बाबन्द दुग्ध उत्पाद की तुलना में स्तन के दूध को वरीयता देना (98 प्रतिशत), घ- अर्ध ठोस आहार देने की आयु (98 प्रतिशत), तथा च- अस्वच्छ बोतल से आहार देना अतिसार रोग का एक प्रमुख कारण (95 प्रतिशत),।

प्राप्त विभिन्न गलत प्रत्युत्तर इस प्रकार थे: क-ऊपर के दूध में पानी मिलाकर दिया जाना चाहिए (43 प्रतिशत), ख- बोतल से आहार बन्द नहीं किया जाना चाहिए (52प्रतिशत), ग- दूसरे के बच्चे को भी अपने बच्चे के साथ स्तनपान कराना हानिकारक है (60 प्रतिशत), तथा घ- स्तनपान कराना मां के स्वास्थ्य के लिए लाभदायक नहीं होता है (41 प्रतिशत),।

मां के क्षय रोग हो, मलेरिया हो तथा अतिसार रोग होने की स्थिति में स्तनपान बन्द कर देना चाहिए- इस प्रश्न के उत्तर में विभिन्न पक्षों के बारे में क्रमशः 66 प्रतिशत, 41 प्रतिशत तथा 24 प्रतिशत आंगनबाड़ी कार्मिकों द्वारा गलत प्रत्युत्तर दिए गए थे। इन निष्कर्षों को ध्यान में रखते हुए आंगनबाड़ी कार्यकर्ताओं को शिशु आहार के बारे में दिए जाने वाले प्रशिक्षण में संशोधन करने की आवश्यकता है उनके ज्ञान का अद्वयन बनाये रखने के लिए आंगनबाड़ी कार्मिकों को सतत् शिक्षण प्रदान करने की आवश्यकता है।

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SULABH SWASTHYA YOJANA - AN IMPACT AND ATTITUDE STUDY

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ABSTRACT

The present study was undertaken with the main aim to study the attitude and impact of Sulabh Swasthya Yojana (SSY) which was in operation in Tatapani area tehsil of Kalakote, District .Rajouri. It was also intended to measure the impact of the programme as well as the change in attitude of the people towards the primary health care, sanitation and family planning services.

Findings of the study revealed that there has been a positive change in the attitude of the people regarding family planning education, anti-natal care, post-natal care, care for the girl child and trench latrine, smokeless chulhas and kitchen garden in the three categories of villages i.e. adopted, non-adopted and adjoining villages where the study was conducted.

The Alma Ata Declaration in 1978 identified Primary Health Care (PHC) as the key instrument to the attainment of WHO'S call for Health for All (HFA) by 2000 AD. The National Health Policy (1983) also reiterated India's commitment to attain Health for All by the Year 2000 through Primary Health Care. Primary Health Care approach seeks to provide universal comprehensive health care services relevant to the actual needs and priorities of the communities at a cost which people can afford. In this context that the National Health Policy (1983) seeks to bring out a shift in emphasis from hospital-based urban medical care to field-oriented health care.

Improving the health of citizens has been an endeavour in which every section of the community must feel involved. Health personnel were the leaders in this

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Movement but ultimately it was the people's cooperation which matters most. The importance of non-governmental organisations cannot be overemphasised. Throughout the developing world, there has been a growing realisation that the governmental and non-governmental agencies should work together and supplement each others efforts to improve the quality of life of the people. In the developing countries, the Governments have become more aware of what nongovernment organisations (NGOs) can contribute to the national development. The Government of India too has laid more emphasis in its Eighth Five Year Plan on involving voluntary agencies in various developmental programme particularly in the planning and implementation of programmes of rural development.

HUMAN RESOURCE DEVELOPMENT IN HEALTH

Human resource has an important place for the development of health and family welfare. One of the exponent of Health Manpower Development has remarked that a more specialised and specific form of investment that of health manpower was necessary before any meaningful strides could be made in health development. Increase in knowledge, skills and capacity of all people in a society is bound to accelerate the pace of development. The Human Resource Development in support of the Sulabh Swasthya Yojana (SSY) should have two basic elements¹: (i) A long-term educational programme for the community in general; and (ii) A short-term training programme for the staff of the implementing agencies in particular.

Education has been an investment for the future, which creates in the community a basis for problem identification, analysis and solution. Education improves factual knowledge, applicable methodologies and also the attitudes of the people. Training on the other hand, aims at improvement of skills with shorter contact time for solving specific problems.

The success of any national programme largely depends on how well the educational and training needs have been anticipated and how well the authorities manage to impart appropriate education to a sufficient number of its citizens and also specific training to the required numbers of programme implementers. The role of programme implementers or commentators or health educators has been very crucial for motivating the people towards their programme and transmitting the message effectively. In the process of education and message transformation the important factor has been the selection of stimulus or message. If the stimulus has been effective, people would react favourably and once the people react favourably, the change in human behaviour would definitely take place. The stimulus may be positive or negative or neutral. Therefore, for a change agent, it becomes of pivotal importance to understand the role of stimulus and also its effectiveness at a particular point of time, in a given situation, while making

Selection for stimulus one must take care that its effect must be positive. For positive stimulus can bring necessary change in knowledge and attitude. The health education and behavioural changes have been directly linked and health education is a process of bringing changes in knowledge, attitude, beliefs and behaviour. Thus, human resource development has been considered as very important in order to bring improvement in the capabilities of the volunteers or trainers imparting health education to the people and also effecting metamorphosis in knowledge and attitude of the people.

OBJECTIVES OF SULABH SWASTHYA YOJANA (SSY)

The objectives of Sulabh Swasthya Yojana launched in the State of Jammu were as follows:

1. To involve community for various Family Planning and Maternal and Child Health (MCH) programme;
2. To develop health conscious culture for achieving Health for All by 2000 AD;
3. To improve sanitary conditions in rural areas by innovative means, i.e. deep trench latrines etc.
4. To help rural people in energy conservation, by providing smokeless chulhas;
5. To improve nutrition status of rural population by educating them about kitchen garden and low cost diet;
6. To ensure 100 per cent immunisation of children below five years of age;
7. To educate people about various epidemics and means of protection;
8. To ensure community participation in promotion of health and family welfare;
9. To educate rural people about traditional system of medicine and treatment both curative and preventive methods; and
10. To educate the people about small family norm and different family planning methods.

COMMUNITY MOTIVATION: JAMMU & KASHMIR MODEL

This Yojana in Tatapani Area of Rajouri district of Jammu & Kashmir State aims at motivating the community to adopt a package of sanitary and primary health care practices through a cadre of grassroots change agents at the village levels called as 'volunteers'. They are from all walks of life, i.e., retired servicemen, businessmen, local politicians, teachers and shopkeepers. Even farmers, ladies, coalmine workers, housewives, girls and illiterate enthusiastic persons were also motivated to deliver voluntary service for the community. These volunteers served as the very backbone of this initiative towards community involvement and participation. They were exposed to intensive training on different aspects of Sulabh Swasthya Yojana through door-to-door visits, group meetings and village campaigns.

THE PRESENT STUDY

The Sulabh Swasthya Yojana has been in operation in the Tatapani area of Tehsil Kalakote, District Rajouri. The present study intends to measure the impact of the programme as well as the change in attitude of the people towards primary health care, sanitation and family planning services.

IMPACT ANALYSIS

The main objectives of the impact analysis of the Sulabh Swasthya Yojana were as follows:

1. To study the impact of SSY on immunisation of different groups of population, i.e., 0-1, 1-5, 5-16 and 16 above.
2. To study the impact of the SSY on sanitation, more particularly on smokeless chulhas, kitchen garden and trench latrines; and
3. To study the impact of the SSY on immunisation of pregnant women and acceptance of family planning methods.

Impact on Immunisation: The analysis of data revealed that the programme has a positive impact on immunisation of children (0-1 year). One hundred per cent of children whose birth occurred after the launching of the programme were immunised, but before the programme was launched only 5 out of 81 children born were immunised. Children born after the adoption of the area, cent per cent were under process of immunisation.

The data pertaining to (1-5 years) showed that before the launching of programme only 19 children out of 335 were immunised. But with the launching of the programme 323 children were immunised.

The data relating to 5-16 years age group showed that before the launching of the programme no immunisation was done for this group out of 947 samples. But with the launching of the programme except 27 all were immunised.

The analysis of data as far as immunisation of 16 and above age group was concerned revealed that before the programme launched there was no immunisation. But after the launching of the programme 1219 people out of 1478 sample were immunised against Cholera and TB.

Impact on Sanitation: The analysis of data showed that with the launching of the programme 95 per cent of household have constructed deep trench Jatrane, and 65 per cent have been using them. Further, it was also found- that the programme has created a growing interest among Bakerwals (nomads) in installing deep trench latrines.

As far as kitchen garden was concerned it was noticed that every house has realised the need and benefits of kitchen garden and further they were also well convinced about their double benefits: (i) financial; and (ii) dietetic improvement. About 411 households have developed kitchen gardens.

Analysis of the data revealed that 100 per cent of household where the smokeless chulhas installed were in use.

Impact on Immunisation of Pregnant Women and Family Planning: The analysis of data showed that before the launching of the programme only 16 pregnant women out of 77 were immunised. But with the launching of the programme 100 per cent immunisation of pregnant women has been done.

As far as acceptance of different family planning methods was concerned out of a total 335 eligible couples 83 have been sterilized, only one was using IUD and 15 were using oral pills.

ATTITUDE ANALYSIS

The present study also intends to measure the impact of Sulabh Swasthya Yojana on change in attitude of the people towards the programme; it was conducted in three different villages of Rajouri district. Total sample of the study was 150. The villages were purposively chosen. The first category of the village chosen was the ADOPTED village where the Sulabh Swasthya Yojana has been

Launched, the second category was the ADJOINING village to the adopted village and the third category was the NON-ADOPTED village situated 30 kms. away from the adopted village.

For the success of any developmental programme in rural areas, the change in attitude of rural people has been very important. The change in attitude can be effected only through proper education and training. The basic aim of education and training was to effect behavioural changes based more particularly on change in the attitudes. Attitudes have been the prime mover of thought and action. What a man thinks is reflected in his/her expressed attitude. Scholars have considered attitude as a mental and neutral state of readiness, organised through experience, exerting a directive or dynamic influence upon the individual's response to all objects and situations with which it is related². Attitude have also been defined as a 'disposition to react favourably or unfavourably to a class of objects.

For the present study a five-point attitude scale was used for data collection.

The main objectives of the present study were: (1) to study the impact of Sulabh Swasthya Yojana on the attitude of the people in adopted, adjoining and non-adopted village; (2) to find out the impact of SSY on attitudes of Hindu and Muslim population in adopted, adjoining and non-adopted village; (3) to gauge the impact of SSY on people's attitude towards family planning, anti-natal care and post-natal care in all these three categories of villages; and (4) to find out the impact of SSY on attitude of people towards trench latrines, kitchen garden and smokeless chulhas in the above three categories of villages.

HYPOTHESES

These objectives were framed on keeping above three important hypotheses in view: (1) The SSY will have a differential impact on attitude of adopted, adjoining and non-adopted villages; (2) It will have also a differential impact on Hindus and Muslims; and (3) It will have a positive impact on adjoining villages.

FINDINGS

The analysis of data as depicted in Table 1 regarding the change in attitude towards family welfare, anti-natal care, natal care and post-natal care, care for the girl child and trench latrines, smokeless chulhas and kitchen garden showed that the attitude score of adopted village people (81.96%) was 31 per cent higher than the non-adopted village (50.3%).

TABLE 1**ATTITUDE SCORE OF ADOPTED, ADJOINING AND NON-ADOPTED VILLAGERS**

Types of Villages	Total Attitude Score (percentage)	Attitude Score of Hindus (percentage)	Attitude Score of Muslims (percentage)
Adopted	81.96	82.3	81.75
Adjoining	70.07	70.07	68.21
Non-adopted	50.03	52.84	50.48

It was also found that the village adjoining to the adopted village has an attitude score of 70.07 per cent which was 20 per cent higher than the non-adopted village. This clearly shows that there has been a transition of knowledge from the adopted villages to the adjoining villages.

With regard to the attitude score of Hindus and Muslims, it was found that there has been a little variation in score among the population of these two communities. But further it also depicted that the score of adopted village of both Hindus and Muslims were higher than that of non-adopted villages. There was only 1 to 2 per cent variation in total score of Hindus and Muslims in above three categories of villages. This means that SSY has an equal effect on Hindus and Muslims.

The mean attitude scores in the areas of family planning education, anti-natal care, post-natal care, care for the girl child and trench latrines, smokeless chulhas and kitchen garden in above three categories of villages have been described in Table 2.

The analysis of data regarding attitude towards family planning education showed that the adopted village has highest score of 78.0 per cent, adjoining village has 66.36 per cent and the non-adopted village has only mean attitude score of only 49.6 per cent. In anti-natal and post-natal care also the adopted villages have scored 30 per cent more than the non-adopted village. The score of adjoining village in the above two areas was also 20 per cent more than that of the non-adopted. As far as care for the girl child was concerned it was found that only 48.8 per cent of the sample population have developed favourable attitude towards higher education for the girls, their proper nutrition and late marriage of girl child. But in case of adopted and adjoining village the percentages were 81.6 and 76.6 respectively. The analysis of data on preference for son showed that the people in the above three categories of villages have strong preference for son,

there was no valuation in attitude score.

TABLE 2

MEAN ATTITUDE SCORE IN ADOPTED, ADJOINING AND NON-ADOPTED VILLAGES

Contents	Mean Attitude Score of Adopted Village (Percentage)	Mean Attitude Score of Adjoining Village (Percentage)	Mean Attitude Score of Non-adopted Village (Percentage)
Family Planning Education	78.0	66.36	49.6
Anti-natal care	88.8	73.86	52.0
Post-natal care	85.6	65.86	56.8
Care for girl child	81.6	76.6	48.8
Preference for son	94.4	95.3	97.3
Trench latrines, smokeless chulhas and kitchen garden	87.8	77.6	43.3

The analysis of data regarding the attitude of adopted village people towards trench latrines, smokeless chulhas and kitchen garden showed that 97.8 per cent have developed favourable attitude as against only 43.3 per cent in case of non-adopted village. In case of adjoining village the percentage was 77.6 it clearly depicts that the people of non-adopted village have not developed strong attitude about the sanitation. This finding was also supported by the finding of a recent KAP survey (UNICEF) that in India 37 per cent people do not know/do not believe that exposed excreta can harm health. As per WHO statistics, 80 per cent of diseases in the developing countries have been related to unsafe water supply and inadequate sanitation causing high child mortality, low life expectancy and poor quality of life.

CONCLUSION

The findings of the study clearly revealed that SSY has a significant impact on immunisation, sanitation and nutrition. It has positively affected the attitude of the people also towards all the aspects of the SSY programmes. The earlier Alwar Model (Rajasthan) of Intensive Sanitation Programme, Periyar Project (Tamil Nadu) of Cleanliness, Midnapur (West Bengal) Sanitation Project and Intensive Sanitation Project in Allahabad (Uttar Pradesh) have also depicted positive impact

On village sanitation.

The sanitation was considered a key to achieve Health for all by 2000 AD. The NGOs should play a pivotal role in achieving this end. For its successful implementation, it requires following pre-requisites:

1. Identification of dedicated motivators or volunteers.
2. Effective trainers training programme.
3. Development of appropriate information, education and communication (IEC) materials.
4. Mobilization of adequate resources and low cost appropriate technologies and infrastructure.
5. Appropriate focus on illiterate person and women for participation.
6. Selection of appropriate strategies for community participation.
7. Inter-sectoral coordination and coordination between different rural development programme implementing agencies.
8. Development of appropriate monitoring (men, money and materials) mechanism of the programme.
9. Development of appropriate techniques and tools for evaluation of the programme.

Lkkjk'k

प्रस्तुत अध्ययन का संचालन राजौरी के कालकोट जिले में तातापानी तहसील क्षेत्र में संचालित सुलभ स्वास्थ्य योजना की अवधारणा तथा प्रभाव का अध्ययन करने के उद्देश्य से किया गया था। इस कार्यक्रम का एक उद्देश्य से इस क्षेत्र के लोगों पर कार्यक्रम के प्रभाव के साथ-साथ प्राथमिक स्वास्थ्य परिचर्या, स्वच्छता और परिवार नियोजन संबंधी सेवाओं के प्रति उनकी अवधारणा से सही परिवर्तन का अनुमान लगाना भी था।

अध्ययन से प्राप्त निष्कर्षों से पता चलता है कि तीनों श्रेणियों के गांवों में अर्थात् योजना के अन्तर्गत कवर किए गए गांव, कवर न किए गए गांव तथा आसपास के गांव जहां इस अध्ययन का संचालन किया गया था वहां के संबंधित क्षेत्रों के लोगों की अवधारणाओं में निम्नलिखित पक्षों के संदर्भ में सकारात्मक परिवर्तन आया था: परिवार नियोजन शिक्षा, प्रसव पूर्व परिचर्या, प्रसवोत्तर परिचर्या सेवा, बालिका शिशु की देखरेख, खाई नुमा शौचालय, धुंआ रहित चुल्हा रहित किचन गार्डन।

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