

A COMPARATIVE STUDY ON NUTRITIONAL STATUS OF UNDER 6 YEARS CHILDREN IN I.C.D.S. AND NON I.C.D.S. TRIBAL AREAS OF UTTAR PRADESH

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Abstract :

Objectives :

1. To find out the nutritional status of children under six year.
2. To determine the level of difference in nutritional status of Children under six years in I.C.D.S. and Non I.C.D.S. tribal areas.
3. To assess the impact of I.C.D.S. scheme on nutritional status of children below six years.

Study Design : Cross Sectional Study

Participants : Under six years children.

Sample Size : 1536 children of Nighasan block (I.C.D.S. block) and 1471 of Ramia Behar block (Non I.C.D.S. block).

Key Words : Nutritional status, I.C.D.S., height - weight index, Service impact.

Results : All the value for height & weight in both groups were lower as compared to the I.C.M.R. standards. All children in I.C.D.S. group were below the normal weight - height index (i.e. > 0.15) while in Non I.C.D.S. group were below normal wt.-ht. index in all age group except 6 -<24 months male & 3 - < 9 months female. Overall prevalence of P.E.M. in I.C.D.S. group was 90.36% while it was 86.85% in Non I.C.D.S. group. The difference was significant.

Introduction :

The world most profound nutrition emergency is not seen on screens and does not provoke public out rage, yet common every day malnutrition is shocking in both scales and severity, a stealthy accomplice of poverty. It stunts the mental and physical growth of one in three children in developing countries, only 1% or 2% of the world's children exhibit visible signs of malnutrition. But an estimated 190 million

children under five years are chronically malnourished, locked early into a pattern of ill health and poor development. The problem is most wide spread in South Asia, home to half the world's malnourished children. I.C.D.S. is an ambitious scheme with sizeable inputs but various comments and observations create doubt in the mind.

The present study was under-taken to assess the nutritional status of under six years children and impact of I.C.D.S. scheme on

nutritional status of children.

Material and Methods :

The present cross sectional study was carried out for a period of one year i.e. 16 December 1996 to 15 December 1997. Community development block Nighasan of district Lakhimpur Kheri of Uttar Pradesh, where I.C.D.S. scheme is running in 127 villages. The Non I.C.D.S. block in which study was carried out for comparison is community development block Ramia Behar. The sampling frame included a total 5% population from each community development block (I.C.D.S. & Non I.C.D.S.), children below six years of age were studied. A two stage stratified random sampling procedure was applied. In first stage two I.C.D.S. and Non I.C.D.S. tribal community blocks of Lakhimpur Kheri district were randomly selected . In second stage, by stratified random sampling, 10 Anganwadi villages from I.C.D.S. block (Nighasan) & 10 villages from Non I.C.D.S. block (Ramia Behar) were selected. I.C.D.S. project area was divided into five geographical sectors of approximately equal population. For each of the 5 geographical areas prepared two lists of Anganwadi with village name, one for Anganwadi located in subcentre head quarter

village and another for rest of Anganwadi located about 5 k.m. away from the subcentre head quarter village. Five anganwadi's were selected from each of 2 lists. The same procedure was applied for selection of the 10 villages of Non I.C.D.S. Ramia Behar block. Atleast 95% under six years children of 5% population of study blocks must be covered by study thus 1536 (99.16%) in I.C.D.S. block Nighasan and 1471 (97.93%) children in Non I.C.D.S. block Ramia Behar could be studied inspite of multiple contacts. For doing survey in each Anganwadi I.C.D.S.) and village (Non I.C.D.S.) investigator went to the Anganwadi or village and selected at random, one house hold and started house to house survey and continued till whole village was covered in study. The weight of children was measured with the help of detecto weighing machine. For Children upto 2 years of age, length was measured with the help of Infantometer while older childrens' standing height was recorded with the Anthropometric Rod. After recording Anthropometric measurements every child was subjected to complete general clinical examination to discover any sign of deficiency diseases or malnutrition.

Results :

TABLE - 1
Distribution of Mean Weight of Male Children by their age

Age (Months)	ICDS Group			Non ICDS Group			Z	P	ICMR	
	No.	Mean weight (Kg.)	SD	No.	Mean weight (Kg.)	SD			Mean weight (Kg.)	SD
0- <3	39	3.669	0.839	43	3.7162	0.888	-0.2474	>.05	4.5	1.42
3- <6	50	4.508	1.404	49	5.220	0.864	-3.0454	<.001	6.7	1.14
6- <9	30	5.560	1.090	44	6.330	1.004	-3.0797	<.001	6.9	1.15
9-<12	49	6.120	1.309	48	6.702	1.176	-2.3045	<.05	7.4	1.27
12-<24	163	7.410	1.540	180	7.732	1.551	-1.9273	>.05	10.1	1.80
24-<36	157	9.034	1.450	143	9.443	1.454	-2.4366	<.05	11.8	2.00
36-<48	145	10.308	1.930	162	10.855	1.489	-2.7176	<.01	13.5	2.97
48-<60	65	12.266	2.016	126	11.928	1.492	1.1936	>.05	14.8	2.28
60-<72	107	13.468	1.820	87	12.996	1.941	1.7025	>.05	16.3	2.68

Children in Non I.C.D.S. group had higher weight as compared to I.C.D.S. group except 48-60 months & 60-72 months age group where weight was higher in I.C.D.S. group. The difference was

statistically significant from 3-<6 to 36-<48 months age group except 12-<24 months age group. All the values for weight in both groups were lower as compared to the I.C.M.R. standards (Table-1)

TABLE - 2
Distribution of Mean Weight of Female Children by their age

Age (Months)	ICDS Group			Non ICDS Group			Z	P	ICMR	
	No.	Mean weight (Kg.)	SD	No.	Mean weight (Kg.)	SD			Mean weight (Kg.)	SD
0- <3	28	3.493	0.807	37	3.706	0.786	-1.0656	>.05	4.2	1.17
3- <6	42	4.238	0.936	27	5.168	0.995	-3.8795	<.001	5.6	0.98
6- <9	29	5.389	1.160	34	5.946	1.057	-1.9783	>.05	6.2	0.99
9-<12	50	5.940	1.157	33	6.370	0.988	-1.8114	>.05	6.6	1.13
12-<24	151	7.146	1.639	128	7.319	1.230	-1.0054	>.05	9.6	1.93
24-<36	136	8.774	1.749	111	9.014	1.572	-1.1345	>.05	12.2	1.96
36-<48	150	10.420	1.921	103	10.588	1.750	.07207	>.05	12.9	2.17
48-<60	47	12.066	2.026	65	11.629	1.790	1.1823	>.05	14.5	2.31
60-<72	100	12.853	1.825	51	13.039	1.569	0.6512	>.05	16.0	2.63

Weight of the female children was higher in the Non I.C.D.S. group in comparison to I.C.D.S. group in all age group except 48-<60 months age group. The difference was not statistically

significant except 3-<9 months age group. All the values for weight in both groups were lower as compared to the I.C.M.R. standards. (Table - 2).

TABLE - 3
Distribution of Mean Height of Male Children by their age

Age (Months)	ICDS Group			Non ICDS Group			Z	P	ICMR	
	No.	Mean Height (Cm.)	SD	No.	Mean Height (Cm.)	SD			Mean Height (Cm.)	SD
0- <3	39	54.59	4.944	43	53.56	4.430	0.95008	>.05	56.2	5.90
3- <6	50	59.97	4.978	49	59.276	4.128	0.75680	>.05	62.7	4.01
6- <9	30	64.68	4.139	44	64.657	3.467	0.02503	>.05	64.9	8.10
9-<12	49	66.82	4.836	48	66.620	4.892	0.20246	>.05	69.5	4.50
12-<24	163	73.23	6.541	180	71.45	6.015	2.61450	->.01	81.6	5.32
24-<36	157	80.66	6.992	143	80.23	5.980	0.57390	>.05	88.8	6.57
36-<48	145	87.657	7.521	162	86.72	6.336	1.17316	>.05	96.0	6.72
48-60	65	93.042	8.968	126	91.74	6.1761	0.83011	>.05	102.1	8.08

Heights of male children were higher in I.C.D.S. group as compared to Non I.C.D.S. group. The differences were not statistically significant except

12-<24 & 60-<72 months age group. All the values for height in both groups were lesser as compared to the I.C.M.R. standards. Table- 3).

TABLE - 4
Distribution of Mean Height of Female Children by their age

Age (Months)	ICDS Group			Non ICDS Group			Z	P	ICMR	
	No.	Mean Height (Cm.)	SD	No.	Mean Height (Cm.)	SD			Mean Height (Cm.)	SD
0- <3	28	54.232	6.843	37	54.040	3.659	0.1346	>.05	55.00	5.41
3- <6	42	57.770	5.417	27	58.630	3.188	-0.8294	>.05	60.90	3.55
6- <9	29	62.520	3.743	34	62.706	3.202	-0.2099	>.05	64.40	3.63
9-<12	50	67.500	5.394	33	66.900	4.057	0.5772	>.05	66.70	3.85
12-<24	151	73.852	7.697	128	70.131	5.033	4.8433	<.001	80.10	5.79
24-<36	136	81.546	7.589	111	78.690	4.976	3.5768	<.001	87.20	6.34
36-<48	150	88.263	7.275	103	86.407	8.359	1.8277	>.05	94.50	6.35
48-<60	47	98.985	6.0918	65	92.596	6.625	5.2789	<.001	101.40	7.35
60-<72	100	100.00	14.994	51	96.630	7.138	1.8701	>.05	107.84	US

Heights of female children were higher in I.C.D.S. group as compared to Non I.C.D.S. group. The differences were statistically significant in 9-<12,

12-<24 & 48-<60 months age group. All the values for height in both groups were lesser as compared to the I.C.M.R. standards. Table- 4).

TABLE-5
Distribution of Mean Weight Height Index of Children

Age (Months)	ICDS Group		Non ICDS Group	
	Male	Female	Male	Female
0- <3	.1213	.1188	.1295	.1269
3- <6	.1253	.1269	.1486	.1504
6- <9	.1329	.1379	.1515	.1512
9- 12	.1369	.1304	.1510	.1423
12-<24	.1382	.1310	.1515	.1488
24-<36	.1389	.1319	.1467	.1456
36-<48	.1342	.1338	.1443	.1418
48-<60	.1417	.1231	.1417	.1356
60-<72	.1295	.1285	.1296	.1396

Height- weight index value < 0.15 was considered as below normal. All children in I.C.D.S. group were below the normal while children in Non I.C.D.S. group were below normal

index in all age groups except 6-<24 months male and 3-<9 months female who showed >0.15 weight height index. (Table - 5).

TABLE-6
Prevalence of Malnutrition

Malnutrition	ICDS Group N=1536		Non ICDS Group N=1471		Z	P
	Number	Ratio/100	Number	Ratio/100		
Grade-1	336	21.880	438	29.78	- 4.96	< .000 1
Grade-II	556	36.202	544	36.98	-0.44	>.0500
Grade-III	321	20.890	257	17.47	+2.39	>.01-<.02
Grade-IV	175	11.393	40	2.72	+ 9.40	C.001
Total	1388	90.365	1279	86.95	2.9475	.032

Overall prevalence of P.E.M. in I.C.D.S. group was 90.36 per 100 children while it was 86.95 per 100 in Non. I.C.D.S. group. The difference was significant (Z= 2.9475, P = .032 means <.05). The prevalence of severe grade of P.E.M. (Grade III & IV) was 32.48 per 100 in I.C.D.S.

group where it was 20.19 per 100 in Non I.C.D.S. group of children (Z = 7.618, P =<.001). Prevalence of P.E.M. in I.C.D.S. was more than Non I.C.D.S. group except grade 1, grade II where prevalence was higher in Non I.C.D.S. group. (Table - 6).

TABLE - 7
Distribution of Children according to supplementary Nutrition

Type of supplementary Nutrition	ICDS Group		Non ICDS Group		z	P
	Number (Out of 1536)	%	Number (Out of 1471)	%		
Vitamin-A	15	0.977	67	4.555	- 5.98	<.0001
Iron-Folic Acid supplementary Nutrition	0	-	0	0	-	-
	121	7.88	0	0	-	-

Coverage for Vitamin A was lower in I.C.D.S. groups (.99%) as compared to Non I.C.D.S. group (4.55%). IFA was not received by any child only 7.88% children received supplementary nutrition out of which only 4% children received supplementary nutrition regularly. Table-7).

Conclusion :

Weight of the children of I.C.D.S. group was lower as compared to Non I.C.D.S. group. The height of I.C.D.S. group was higher as compared to Non I.C.D.S. group. The overall prevalence of Protein Energy Malnutrition in I.C.D.S. group was 90.36% while it was 86.95 percent in Non I.C.D.S. group. The difference was significant. Prevalence of P.E.M. in I.C.D.S. group was more than in Non I.C.D.S. group except grade I & II where prevalence was higher in Non I.C.D.S. group. Coverage for Vitamin A was lower in I.C.D.S. (99.6%) as compared to Non I.C.D.S. group (4.55%).

Suggestions and Recommendation :

1. Supplementary food should be given regularly to beneficiaries and people should be educated about its necessity even if it is not available at Anganwadi Centre.
2. The supplementary foods can be purchased from the local village committee & people.
3. Programme for adult education particularly of women need to be further strengthened so as to achieve functional literacy

necessary for inculcation of healthful habits and practices in the family specially children.

4. Monitoring and supervision of scheme should be activated.

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