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Research Paper

Impact of family ecological factors on the nutritional status of school age children

■ ARCHANA SINGH **AND** PRADEEP KUMAR

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See end of the paper for authors' affiliations

Correspondence to :
ARCHANA SINGH
Krishi Vigyan Kendra,
UNNAO (U.P.) INDIA

■ **ABSTRACT :** Malnutrition is found to be a wide spread problem in India irrespective of topographical description. While malnutrition affects the people of all ages, it is agreed that children in the world die of malnutrition and related diseases every day. Keeping in view the importance of nutritional status of school age children the present study was undertaken in Dhaura village of Hasnganj block of district Unnao (U.P.). In total 64 children aged 6-14 years were surveyed to assess the nutritional status.The result of the study revealed that as per Waterlow classification 48.44 per cent of the children studied were suffering from various grades of malnutrition. On the basis of MUAC, 45.31 per cent children were found malnourished. The nutritional status of children was found to be significantly correlated with different family ecological factors like education of mothers, monthly family income and dietary practices of the family.

■ **KEY WORDS :** Impact, Family ecological, Factors

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Children are the supreme assets and future of any nation, therefore, their health and wellbeing is of great significance. Like pre-school children, 6-14 year old children are of concern from nutrition point of view, as they are still in growing age physically and their intellectual development is rapid. Inadequate nutrition impairs the physical and mental development of the children along with their performance at school. Hence, nutritional status assessment studies are necessary to map out the magnitude of malnutrition, to discover and to analyze the ecological factors that are directly or indirectly responsible and, where possible suggest corrective measures. Keeping the above points in mind the present study was planned on 6-14 year old children.

■ RESEARCH METHODS

The locale of the study was Dhaura village of Hasanganj block of district Unnao, U.P. In this study 35 families residing in Dhaura village having at least one child in the age group of 6-14 years were purposely selected. The subjects for the study included 64 children in the age group of 6-14 years. Information regarding general profile of the families was collected by interviewing child's mother at home, in the formulated and pre-tested interview schedule.The information collected included, type of family, family size, number of the children in the family, total family, income, education and occupation of the parents. Income from all sources like animals, service, farming and other if any, was considered to calculate the total income of the family. Dietary practices include the storage and cooking of food, followed by the families were recorded in the proforma as per the method of Burges and Burges (1975). Evaluation of the dietary practices was done according to the scoring scale adopted from the scoring scale set for sanitary practices given by Henry and Rahman (1987). Anthropometric measurements namely height, weight and mid upper arm circumference were recorded by the techniques given by Gibson (1990) and extent of malnutrition in children was assessed by Waterlow classification (1972) based on height for age and weight for height. The collected data were

classified in the light of the study. The classified data were tabulated and analyzed statistically with the help of approved statistical techniques.

■ RESEARCH FINDINGS AND DISCUSSION

The experimental findings obtained from the present study have been discussed in following heads:

Socio-economic profile of the families:

The data presented in Table 1 revealed that majority of the families were nuclear followed by extended and joint family type. Out of total 42.80 per cent of the families had 3-6 members in the family with the mean family size of 6.74.

Table 1: Profile of the respondents

Sr. No.	Category	Per cent distribution of families	
		N	%
1.	**Type of family**		
	Nuclear	19	54.29
	Extended	09	25.71
	Joint	07	20.00
2.	**Size of family**		
	3-6 members	15	42.8
	7-9 members	16	45.71
	≥10 members	04	11.43
	Mean ± S.D.	6.74 + 2.50	
3.	**Education of fathers**		
	Illiterate	09	25.71
	Primary School	06	17.14
	Middle School	09	25.71
	High School	07	20.00
	Intermediate and more	04	11.43
4.	**Educating of mothers**		
	Illiterate	23	65.71
	Primary School	06	17.14
	Middle School	05	14.29
	High School	01	2.86
	Intermediate and more	-	-
5.	**Occupation**		
	Agriculture	21	60.00
	Labourer	07	20.00
	Business	04	11.43
	Service	03	8.57
6.	**Caste**		
	Lower caste(Sc/ST)	15	42.86
	Middle caste (OBC)	08	22.86
	High caste(General)	12	34.28
7.	**Monthly income**		
	<2000	17	48.57
	2000-3000	09	25.71
	3000-4000	05	14.29
	>4000	04	11.43
	Mean ± S.D.	2393.57+1242	

The educational level of parents was not found to be very good in the present study. As table depicts, 25.71 per cent of fathers were illiterate, 17.14 per cent, had schooling up to primary, 25.71 per cent up to Middle school, 20 per cent up to High School and 11.43 per cent got schooling up to Intermediate level and above. Whereas in the case of mothers majority of mothers were illiterate *i.e.* 65.71 per cent and 17.14 per cent with Primary School level, 14.29 per cent with Middle School level and only 2.86 per cent of mothers were educated up to High School level. Heads of the families surveyed were engaged in various types of occupation. Majority of them (60.00%) were doing agriculture farming, rest were engaged in other types of occupations such as farm labourer (20.00%), business (11.45%) and service (8.57%). Majority of the families belonged to lower caste (42.85%) followed by high caste (34.28%) and middle caste (22.85%). Further findings indicated that out of total, 48.57 per cent families fell in income group levels less than 2000/- per month. Only 11.43 per cent families came in category whose monthly income was more than 4000/-.

Dietary practices of the family:

Table 2 depicts the scores of dietary practices of the families. Few practices studied were storage of fruits and vegetables processing of salad, green leafy vegetables, roots and tubers adequacy of space for washing of utensils, disposal of kitchen waste and use of cleaning agents for utensils.

Table 2 : Per cent distribution of families according to their dietary practices

Categories	Scores	Families (n=35)	
		N	%
Good	18-21	02	5.71
Fair	13-17	12	34.29
Poor	7-12	21	60.00

Majority of the families (60%) under study had poor dietary practices. Only 5.71 per cent families had good dietary practices.

Babu (2000) stated that even with adequate food availability of household level, poor eating habits and methods of food preparation and cooking reduces the food and nutrition security of the individuals.

Anthropometric measurements of children:

Average body weight of the children:

Table 3 depicts average weight of selected children. Body weight is the most direct and common measure of growth and it measures the current or transitory nutritional status. In this study average weight of both boys and girls was less when compared with the 50th percentile of NCHS values for weight for age standards.

Table 3: Average weight of boys and girls

Age (year)	Average weight (kg)		NCHS standard	
	Boys	Girls	Boys	Girls
06	17.30 ± 3.42	15.42± 1.99	21.20	20.05
07	18.00±3.62	18.95±3.28	23.40	22.55
08	19.37±6.73	19.01±7.31	26.00	25.70
09	19.50±4.26	20.40±4.71	28.90	29.45
10	24.30±2.08	23.86±4.40	32.35	33.65
11	23.50±2.14	26.05±6.63	36.40	38.10
12	30.25±4.80	32.50±4.80	41.05	42.65
13	34.75±6.32	36.95±10.50	46.40	47.20
14	38.72±2.59	39.00±1.75	50.80	49.30

Average height of the children:

Table 4 depicts the average height of selected children. Height is an indicator of past nutritional status and is known to vary in individual due to genetic, ethnic and individual factors of growth. It changes with age and nutritional status during the growing years. In this study, mean height of both boys and girls was found to be less when compared with 50th percentile of NCHS values for height for age standards.

Table 4: Average height of boys and girls

Age (year)	Height in cm		NCHS Standard	
	Boys	Girls	Boys	Girls
06	111.33±6.78	115.52±4.69	117.50	116.70
07	116.20±5.30	117.09±5.21	123.05	122.05
08	122.00±6.24	119.92±8.76	128.30	127.85
09	123.00±4.00	126.23±5.28	133.50	133.70
10	133.25±3.70	128.51±7.43	138.90	139.90
11	131.00±5.78	136.74±7.77	144.85	146.50
12	141.50±2.95	145.70±6.81	151.30	153.05
13	146.37±1.82	146.00±7.10	158.20	158.05
14	148.50±2.34	151.45±4.39	163.10	161.50

NCHS values for height for age standards

Average mid upper arm circumference of children:

Table 5 indicates the mean MUAC of the children studied. It was found less when compared with 50th percentile of NCHS values for MUAC for age.

Table 5: Average mid upper arm circumstance of boys and girls

Age (year)	Average MUAC(cm)		NCHS standard	
	Boys	Girls	Boys	Girls
06	15.30±0.98	15.00±0.95	17.90	17.60
07	15.50±1.17	15.17±1.10	18.70	18.30
08	15.60±1.56	15.55±1.64	19.00	19.50
09	16.00±0.89	16.00±0.82	20.00	21.10
10	16.75±1.53	16.50±0.92	21.00	21.00
11	18.00±0.83	17.00±1.49	22.30	22.40
12	18.37±1.42	18.25±0.72	23.20	23.70
13	18.75±2.14	18.75±1.45	24.70	24.30
14	20.98±1.68	20.22±0.86	25.30	25.20

Classification of nutritional status of children:

Based on MUAC classification:

Table 6 presents the classification of children according to their MUAC for age. Of the total, 54.69 per cent of the children were normal while 45.31 per cent were found to be malnourished.

Table 6: Per cent distribution of children according to their MUAC

Category	MUAC (%)	Children (n=64)	
		N	%
Normal	≥ 80	35	54.69
Malnourished	< 80	29	45.31

Waterlow classification:

This classification system is based on weight for height and height for age. According to this classification system out of total, 51.56 children were found normal and remaining 48.44 per cent were suffering from various types of malnutrition (Table 7).

Table 7: Per cent distribution of children according to waterlow classification

Category of nutritional status	Children (N=64)	
	N	%
Normal	33	51.56
Stunted	13	20.31
Wasted	14	21.90
Stunted and wasted bath	04	6.25

Correlation of nutritional status of children with different variables:

Table 8 depicts the correlation of nutritional status of children with different variable.

Table 8 : Correlation of nutritional status of children with deferent variables

Family size	-0.121
Education of father	0.055
Education of mother	0.190**
Monthly income	0.146*
Dietary practices	0.239**

* and ** indicate significance of values at P=0.05 and 0.01, respectively

It showed that nutritional status of the children was significantly positively correlated with education of mother, monthly income of the family and dietary practices of the family. Study of Solon (2001) also confirmed that protein energy malnutrition was a consequence not only of inadequate food intake but also of poor living conditions, unhygienic environment and lack of child health care dietary practices of family were found to be significantly positively

correlated with the education of mothers and monthly income of the family.

Conclusion:

The present study concludes that malnutrition among school age children is yet prevailing and the mean height, weight and MUAC for both boys and girls were blow the 50th percentile of NCHS standards. on the basis of MUAC, 45.31 per cent children were found malnourished where as on the basis of Waterlow classification, 48.44 per cent of the children were suffering from various grades of malnutrition. The nutritional status of children was significantly correlated with different family ecological factors like education of mothers, monthly family income and dietary practices of the family. So there is a need of nutrition education of the mothers which may include information regarding the balanced diet, importance of good nutrition for both physical and mental development of the children, nutrient deficiencies, their consequences and available remedies and some income generating programmes should be launched so that income of family can be increased.

Authors' affiliations:
PRADEEP KUMAR, Krishi Vigyan Kendra, UNNAO (U.P.) INDIA

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