

TRABAJOS DE INVESTIGACION

Impact of nutrition education in an applied nutrition programme on nutritionally vulnerable groups of people *

RAJAMMAL P. DEVADAS

Sri Avinashilingam Home Science College for Women, Coimbatore-641011, India

SUMMARY

A nutrition education programme was planned and conducted in a village to a group of 30 preschool children, 10 expectant women and 12 nursing mothers who were participating in an Applied Nutrition Programme (ANP) from which they received milk and eggs as food supplements. The nutritional knowledge of the subjects was evaluated at the beginning and at the end of the six month study period through observation and questionnaire cum interview methods. It was found that the nutrition education programme along with food distribution had influenced significantly changes in the food habits of children and adults. On the strength of this positive impact, the author recommends improvement of the ANP in its quantitative and qualitative aspects.

INTRODUCTION

Although the science of nutrition has made tremendous progress during the last five decades, a major proportion of the world's population is still on the edge of hunger. Undernutrition and malnutrition among the vulnerable groups in their staggering dimensions, impede national development (1-4).

Combating the high incidence of malnutrition requires active implementation of suitable food production and nutrition education programmes. One such effort is the nation-wide

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Applied Nutrition Programme (ANP) in India, sponsored by the central and state governments in collaboration with the UNICEF, FAO and WHO.

The ANP aims at improving the nutritional status of the vulnerable groups through a three pronged approach - increased production of protective foods; their balanced consumption through supplementary feeding programmes, domestic food conservation and food enrichment; and nutrition education.

Attempts are simultaneously being made in several places to evaluate the programme by studying the fulfilment of these aims. Devadas *et al* (5-7) have observed that ANP has effected improvements in the nutritional status and production of protective foods and consumption by the target groups. Some of their findings on the nutritional education aspects are dealt in this paper.

MATERIALS AND METHODS

Selection of the village and subjects

The village 'Pannimadai' in Perianaickenpalayam Community Development Block* in Coimbatore district, where the ANP was in operation was selected for the study, because of the cooperation extended by the rural families. Eggs were produced in that village in quantities sufficient for distributing to the target groups, namely, preschool children, expectant women and nursing mothers.

The first step in this effort was establishment of good rapport in the whole village through holding a mass meeting, when the purpose of the study was explained to the rural families and their leaders. A socio-economic cum dietary survey was conducted to locate the preschool children, expectant women and nursing mothers and to know their economic background, food habits, food expenditure patterns, cooking practices and foods served for different conditions.

Preschool children

The village had a Balwadi (preschool) where 30 children in the age range 2½ - 5½ years had been enrolled and were

* Community Development Block is the Unit for developmental activities. It covers approximately 100 villages and a population of 100,000.

participating in the feeding programme under the ANP. The supplements served were 28.4g of reconstituted skim milk per child per day and a boiled egg per child two times a week. All the 30 children were selected for the study.

Expectant women and nursing mothers

Ten expectant women and 12 nursing mothers who were willing to participate in the feeding programme and had similar socio-economic background were selected. They were given 46.2g and 43.0 g of skim milk per person per day respectively and an egg three times a week.

Conducting nutrition education programme for the children

The children in the Balwadi were observed at the beginning of the study for their eating habits. Factors such as washing hands, wiping hands with towel and others as given in Table I were noted for each child during the observation. For information on their food likes and dislikes, their mothers were interviewed.

After the survey, the preschool children were taught the desirable habits such as washing hands before eating food, wiping hands with clean towels, saying grace before eating food and consuming all the foods served. The methods used were specially composed stories, songs and pictures. Thereafter the children were observed continuously for a period of six months whether or not they were following these practices.

Programme for the families with particular attention to expectant women and nursing mothers

Based on the problems elicited through the diet survey, a nutrition education programme was planned for the whole village. The major problems located were insufficient intake of nutrients, improper methods of cooking and superstitious beliefs regarding foods. The approaches and methods used for conducting the nutrition education programme were screening films, organising exhibitions and demonstrations, holding discussions and individual contacts through home visits.

Film shows

Film shows describing the importance of adequate diets, protective vegetables and their cultivation and poultry keeping were arranged.

Exhibition

An exhibition pertaining to the importance of protective foods during pregnancy and lactation, kitchen gardening and cooking methods was organised.

Demonstration and teaching songs

Demonstrations were arranged in the homes of the village leaders on cooking green leafy vegetables and preparation of low-cost recipes. Songs on nutritional facts were taught during the get-together occasions.

Individual contacts

During the individual contacts through home visits, the mothers were helped to discuss family and individual nutritional problems. At the time of the distribution of ANP food supplements, the nutritional contribution of those foods, importance of home scale production of food and hygienic ways of food preparation were stressed.

Evaluation of nutrition education

At the end of the six month study period, the nutrition education programme was evaluated through the same methods used to check the nutritional knowledge of the participants initially.

The children were evaluated for their improved eating habits, nutritional knowledge and food likes and dislikes.

A questionnaire to check the frequency of use of foods, foods considered important for health, methods of food preparation, supplementary foods used in special conditions and the like was administered to the expectant women and nursing mothers.

RESULTS

Table I shows the changes in the eating habits of the 30 preschool children before and after nutrition education.

The meal-time habits of the pre-school children had been improved through nutrition education.

Incidence of spilling, wasting food and crying were gradually reduced and finally disappeared.

TABLE I
CHANGES IN EATING HABITS OF THE PRE-SCHOOL CHILDREN
BEFORE AND AFTER NUTRITION EDUCATION

Number of children: (30)

Duration: (Six months)

Details	Before nutrition education	After nutrition education
Being properly seated	nil	30
Washing hands before eating	nil	30
Wiping hands with towel after washing	nil	24
Saying grace before eating	nil	26
Eating without spilling	8	30
Wiping soiled hands with dress	30	6

The nutritional knowledge of the pre-school children after nutrition education was assessed by posing questions on the functions of different foods given in ANP. Their answers are presented in Table II.

TABLE II
CHILDRENS' KNOWLEDGE ABOUT NUTRITIOUS FOODS
(Number of children: 30)

Questions	Answers	Number of children answering
Why are eggs and milk given under ANP?	To improve health	20
	To become beautiful	20
	To protect us from disease	18
What is the role of papaya and carrot in our diet?	To give good eye sight	17
	To make the skin smooth	10
Why should we include green leafy vegetables in our diet?	For good blood	27
	For bright eyes	20

Participation of children in the ANP helped them to become aware of the influence of the foods-green leafy vegetables, egg and milk.

Information regarding the food dislikes of the children collected from their mothers is shown in Table III.

TABLE III
FOOD DISLIKES OF THE PRESCHOOL CHILDREN BEFORE AND
AFTER NUTRITION EDUCATION

(Number of children: 30)

(Duration: Six months)

Foods disliked	Number of children	
	Before nutrition education	After nutrition education
Egg	5	nil
Milk	5	nil
Raw vegetables	13	3
Cholam*kali (Sorghum flour-boiled)	8	nil
Papaya	4	nil
Cooked vegetables	2	1
Butter milk	3	nil

* Cholam is *Sorghum vulgare*

All the pre-school children who disliked egg, milk, papaya and butter milk had started to like them after nutrition education.

The nutritional knowledge, food beliefs and practices of the pre-school children's mothers, expectant women and nursing mothers, who participated in the ANP for six months are presented in Table IV.

DISCUSSION

In the beginning of the study hardly any participant could answer the questions on nutritional facts. The mothers were not even aware of the fact that ANP provided food supplements for them. As seen in Table II a majority of the children were aware of the ANP and the nutritional contribution of green leafy vegetables, egg and milk at the end of the study.

TABLE IV
NUTRITIONAL KNOWLEDGE, ATTITUDES AND FOOD PRACTICES
OF MOTHERS AS INFLUENCED BY ANP

(Number of mothers: 30)

(Duration: Six months)

N ^o	Aspect	Before participation in ANP	Percentage	After participation in ANP	Percentage
1.	Reasons for sending children to ANP Balwadi (Nursery school)	Minimises the burden of mothers	30	To get nutritious foods	75
		As requested by Balsevika (Nursery School teacher)	20	To gain knowledge in nutrition	70
		For acquiring discipline, sociability and knowledge	13	To improve sociability of child	45
2.	Knowledge about the ANP supplements	ANP supplements are not conducive to health	90	ANP supplements promote health and education of preschool children	70
		Do not know	43		
		Feeding poor children	33		
3.	Awareness about the name of the programme	'Panchayat' (Local self Government)	42	'Applied Nutrition Programme'	65
		'Government'	32	'Panchayat'	10

TABLE IV (Continuation)

N ^o	Aspect	Before participation in ANP		After participation in ANP	
			Percentage		Percentage
4.	Reasons for giving special consideration to the vulnerable groups	Do not know	65	To increase milk secretion	40
		Children need more attention	10	To give strength during delivery	20
				To promote health	13
5.	Special foods given for the preschool children	Ready made foods purchased from out side Varkki* and Kamarkatt**	66	Maize bread	42
				Green gram dhal payasam (Porridge)	54
				Raw vegetables	40
				Fruits (Banana, Nellikai)@	21
				Green leafy vegetables	23
Butter milk	23				
6.	Methods of cooking	By absorption	7	By absorption	23
		With large amount of water	52	With just adequate water	42
7.	Production of protective foods	Raising kitchen garden	9	Raising kitchen garden	45
		Cultivating on the farm	19	Raising dairy	2
8.	Storage of vegetables	In basket	66	In mud pot kept cool on wet sand	7
		On the floor	4	Bamboo basket with wet cloth	52

* Varkki - Baked sweet product made of wheat flour.

** Kamarkatt - Sweet candy made out of jaggery and coconut.

@ Nellikai - *Emblca officinalis* (Indian gooseberry).

These answers clearly indicate the influence of their participation in the nutrition education programme.

The methods adopted to make the children like the foods disliked previously were, giving milk with sugar, giving boiled egg, giving vegetables with salt and curds, adding coconut to cooked vegetables with salt and curds, adding coconut to cooked vegetables, serving Sorghum gruel with jaggery, papaya mixed with other fruits in salads and butter milk with greens. As a result, seven mothers started adopting the same principles for other members in the family who disliked some of these foods.

The gain in nutritional knowledge of the mothers was tremendous. They even came forward to give many suggestions to improve the feeding such as distributing fruits and vegetables to the vulnerable groups by maintaining community gardens, and making biscuits from maize*, ragi** and bajra***. The food beliefs of the mothers in that village were also greatly modified after participation in nutrition education.

Conclusion

Nutrition education under the ANP had definitely improved the nutritional knowledge and food intake of the participants. On the strength of this positive impact, the ANP needs to be further improved in its quantitative and qualitative aspects.

RESUMEN

El impacto de la Educación Nutricional en un programa de Nutrición Aplicado sobre un grupo vulnerable

Se planificó y ejecutó un programa de educación nutricional en un grupo de 30 preescolares, 10 embarazadas y 12 lactantes que participaron en un programa de nutrición aplicado en un pueblo de la India. En dicho programa se distribuyeron leche y huevos como suplementos alimentarios. Los conocimientos sobre nutrición se evaluaron al inicio y al final del período de estudios de 6 meses de duración mediante observación y cuestionarios por interrogatorio. Se observó que el programa de educación junto con el programa de distribución de los alimentos había cambiado de manera significativa las costumbres alimenticias de adultos y niños.

En vista de este éxito la autora recomienda una modificación de los programas de nutrición aplicada.

* Maize is *Zea mays*

** Ragi is *Eleusine coracana*

*** Bajra is *Pennisetum typhoides*

BIBLIOGRAPHY

1. Mitra, K. The results of diet surveys in India. **ICMR special report series No. 25**, (Indian Council of Medical Research, New Delhi, 1953). Delhi, 1953).
2. Scrimshaw, N. S. *Interactions of nutrition and infection*. **Amer. J. Med. Sci.**, **237**: 367, 1959.
3. Belavady, B. Riboflavin requirements of nursing mother, **Indian J. Med. Res.**, **50**: 104-107, 1959.
4. Shanker, K. Dietary intake and nutritional status of pregnant and nursing women in Hyderabad. **Indian J. Med. Res.**, **53**: 118, 1962.
5. Devadas, R. P., P. N. Shenbagavalli and R. Vijayalakshmi. The impact of an Applied Nutrition Programme on the nutritional status of selected expectant women. **Indian J. Nutr. Dietet.**, **7**: 293-296, 1970.
6. Devadas, R. P., M. Balambal and N. Ushakumary. Impact of an Applied Nutrition Programme on the Nutritional Status of pre-school children in a village. **Indian J. Nutr. Dietet.**, **8**: 260-263, 1971.
7. Devadas, R. P., J. R. Baby Anuradha and B. Sharadambal. Evaluation of an Applied Nutrition feeding programme on the nutritional status of nursing women. **Indian J. Nutr. Dietet.**, **8**: 143-148, 1971.