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Promotion of health through participatory nutrition intervention programmes and nutrition education in rural areas of Karnataka

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ABSTRACT

An attempt was made with participatory methodologies to improve the nutritional status and security of rural families and household at an affordable cost. The study was conducted in Mugali, Madanabhavi and Hosatti villages of Dharwad Taluka of Dharwad district. A total of 100 men and 100 women were selected randomly from these cluster villages. Nutrition knowledge regarding use of soybean and nutritional importance were assessed using a pre-tested questionnaire. Participatory training and exhibition on soybean use and recipes were carried out.Impact of nutrition education was assessed by interview method using questionnaire and nutritional status by body mass index. The results revealed that participatory training on soybean intervention was found to be useful and effective as the respondents could learn by incorporating soybean in different local recipes at their own. The percentage of normal subjects increased from 72.00 to 84.00 per cent in male and 51.00 to 69.00 per cent in female subjects. The knowledge index increased from 32.50 to 65.00 per cent among males and 27.50 to 80.00 per cent among females after the intervention. The farmers expressed that soybean could be processed into Dal and flour and packed to take it up as an income generating activity. The high protein content of soybean, the ease with which it blends in different regular recipes and its acceptability to the members made soybean flour more popular as it enhanced the dietary protein intake and brought about the reduction in malnutrition population. The different recipes of soybean were evaluated organoleptically and found that they were acceptable.

Keywords: Nutrition education; soybean recipe; body mass index

INTRODUCTION

The major nutritional deficiency diseases prevailing in India even after 65 years of independence are protein energy malnutrition, anemia, goiter, vitamin A deficiency and B complex deficiency due to intake of imbalanced diet. Anon (1999) in the NNMB survey reported that only 46.6 per cent of adults in India are normal and 48.2 per cent are suffering from different degrees of energy deficiency.

About 47.00 per cent of children suffer from protein energy malnutrition and 40-50 per cent suffer from iron deficiency anemia. The disease prevalence is higher in pregnant women (80%). In adults the work performance is lowered due to lack of quality proteins in the diet. These problems can be overcome by increasing food production, eradication of poverty, nutrition and health education. Since nearly 50 per cent of India's population is illiterate it poses a special problem to educate them on correct principles of nutrition and health particularly when several undesirable beliefs, systems and practices concerning health and nutrition prevail among them. Since they are illiterate media besides the print media have to be used to spread correct messages on health and nutrition amongst them to bring about a change in their behavioral pattern. Oral (person to person) and audio visual communication media like radio and TV have to be used for educating illiterate population groups. In a country like ours temples can play as nodal points for health education. Exhibitions and group discussions are also very useful in imparting education. Soybean is grown in rural areas of Dharwad district but the farmers are not well aware of the nutritional importance and use of soybean in the diet. Hence the study was taken up to find out the impact of nutrition education on nutritional status and soybean utilization and impact of soybean intervention on nutritional status of the people.

METHODOLOGY

The Technology Assessment and Refinement of Nutritive Cereal-based Rainfed Agro-ccosystem through Institution Village Linkage Programme for Northern Karnataka project has been implemented in the three cluster villages of Dharwad district. The participatory research appraisal and agro-ecosystem analysis revealed that the land is flat with black soil and medium to deep soil depth and soybean is grown in this area. A total of 100 farm women and 100 male farmers were randomly selected from the three villages. Knowledge test was developed to study the awareness of farmers regarding nutritional importance of soybean, processing and use of soybean in diet. The test was administered to the farmers before and after the training, participatory exhibition and product development training. Participatory training was done through series of meetings and focus group discussions to convince the subjects on using of soybean and its importance in nutrition and health. The products prepared by women were subjected to organoleptic evaluation by farm women themselves and matrix ranking of products was carried out by a sub-group of 30 farm women.

The knowledge score was converted to knowledge index in percentage before and after the training.

After training each member was given soybean of 40 g/day for a period of six months. Instructions were given for pre-processing of soybean and using in daily diet in the ratio of 1:10 with staple food (sorghum/wheat). Soybean was incorporated during milling with wheat/ jowar and consumed regularly for six months.

Anthropometric measurements weight (nearest to 0.5 kg) and height in metre ware recorded. Body mass index was calculated and adults were classified into different degrees of malnutrition using James et al (1988) classification.

RESULTS AND DISCUSSION

Table 1 shows the average score and knowledge index of the knowledge test administered to the male farmers/farm women. There was an increase in the knowledge index in males and farm women after the training.

In male farmers the knowledge index increased from 32.50 to 65.00 per cent and in farm women the increase was from 27.50 to 80.0 per cent after the participatory training, exhibition and soybean intake. Similar results were reported by Leyla Alyanak (1997) who reported that training to men and women farmers of Malawi in Africa had a positive sign in production and consumption of soybean in daily diet in the form of porridge.

Table 2 shows the categorization of farmers into various degrees of malnutrition before and after the intervention. The number of normal subjects increased among male farmers and farm women after the participatory training, exhibitions and soybean intervention. It increased from 72 to 84 per cent in male farmers and 51 to 69 per cent in farm women. Among the farmers the percentage of subjects in grade II, grade I and low weight normal was reduced by 50 per cent after the intervention and among farm women grade II was reduced by 50 per cent and grade I mild malnutrition was reduced from 14 to 8 per cent and low weight normal was reduced from 19 to 13 per cent. As soybean is a rich source of good quality protein (40%) there was improvement in nutritional status of the farmers. The percentage of obese subjects was also reduced.

Table 3 shows the average score of the organoleptic evaluation of the soybean products. It was found that Zunaka and Wada were highly acceptable with maximum score of 4.9 each and were ranked first. Chapati was ranked second with score of 4.8 and Talipete was ranked third with a score of 4.7. Soya milk was least acceptable with a score of 2.7.

From the study it was concluded that the participatory training and soybean intervention helped in increasing the knowledge index, improving nutritional

Table 1. Average knowledge score and knowledge index of soybean nutrition and use

Gender	Average score		Knowledge index (%)	
	Before	After	Before	After
Male	6.50	13.00	32.50	65.00
Female	5.50	16.00	27.50	80.00

Table 2. The nutritional status of farmers using James et al (1988) classification

BMI	Nutrition grade	Male farmers (%)		Farm women (%)	
		Before intervention	After intervention	Before intervention	After intervention
16-17	CED grade II moderate	2	1	6	3
17.0-18.5	CED grade I mild	8	4	14	8
18.5-20.0	Low weight normal	12	6	19	13
20.0- 25.0	Normal	72	84	51	69
25.0-30.0	Obese grade I	4	3	8	5
>30.0	Obese grade II	-	-	-	-

Table 3. Average score of organoleptic evaluation and matrix ranking of the soybean products (n= 30)

Soya products	Appearance	Flavour	Consistency texture	Taste	Overall acceptability	Matrix ranking
Soya milk	4.1	2	4	2.5	2.7	VII
Soya curd	4.5	4.3	5.0	4.6	4.5	V
Roti	4.2	4.3	2.0	3.8	3.9	VI
Chapati	4.7	4.8	4.9	4.8	4.8	II
Idli	4.3	4.6	4.7	4.7	4.6	IV
Wada	5.0	4.9	4.9	4.9	4.9	I
Talipete	4.2	4.0	4.3	4.3	4.7	III
Zunaka	4.8	4.8	4.8	4.9	4.9	I

status and popularizing the soybean products.

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