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Dissemination of Nutrition Knowledge among the Rural Women and Children for the Nutritional Security and Assessing the Perceived Socio-economic Impact

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ABSTRACT

The study was conducted in Madurai district of Tamil Nadu, India to assess the existing dietary pattern and nutritional status and nutritional requirements of women through Anthropometry, bio-chemical, clinical assessment and dietary survey methods. The results indicated that nearly 15.00 per cent of the respondents were suffering with chronic energy deficiency having less than 18.5 values of BMI. 31.67 per cent of respondents had mild anemia and 11.67 per cent were suffered with severe anemia with hemoglobin level of less than 7. About 28.00 per cent of the boys and 21.66 per cent of the girls seen to be underweight. Hence the major nutritional requirements needed for the respondents are related to iron rich foods, calcium and protein rich foods and millet based food products. To overcome the above deficiencies various extension approaches were conducted to create awareness among the rural women and children. Overall 53.37 per cent of improvement was seen in the knowledge level of the women respondents. Skill on doing value addition in major food groups has increased to 56.67 per cent. The overall perceived socio economic impact is approximately 40.00 per cent. Frequency of consumption of major foods groups and iron rich foods should be increased. Mothers of the children should be educated about the importance of balanced diet and nutritional programmes.

Key words: Approaches, Impact, Nutrition knowledge.

INTRODUCTION

Women are clearly the most critical target group from a nutrition standpoint. The overall nutritional status of women shows that still 50 per cent of all pregnant women are anemic and at least 120 million women in less developed countries are underweight. The present day lifestyle and changed dietary patterns has led to widespread nutritional deficiency. The prevalence of micronutrient deficiency even in the affluent sections of population is a matter of concern. In Tamil Nadu, a whopping 55.4 per cent of women between 15 and 49 years of age have been found to be anemic. Every 55 out of 100 women in Tamil Nadu are anemic, according to the latest National Family Health Survey report-2016. It is a 3.4 per cent increase in incidence of anemia over the last 10 years. Despite the government distributing iron and folic acid supplements to pregnant women, the prevalence of anemia still increasing. (Deccan Chronicle, March 16, 2016). These women often give birth to underweight children that are malnourished and stunted. So many adverse health outcomes like malnourishment and stunting are determined by the health and nutritional status of women and adolescent girls. All these findings clearly suggest a condition of emergency for improving the nutritional status of women especially in rural areas. Every effort must be made to develop and implement relevant strategies designed to improve health of women. Special care must be taken regarding nutritional status of women which needs to be put into action within no time to bring nutritional empowerment and nutritional security. Awareness has to be created on the cost effective nutritionally rich foods and their value addition and frequency of consumption in order to bring nutritional security. Hence, this Study mainly focuses on the assessment of nutritional requirements of women and children and dissemination of nutritional knowledge through various extension approaches.

METHODOLOGY

The study area considered is Madurai district of Tamil Nadu, India. In Madurai district the nutritionally most defective taluks like Madurai North and Vadipatti taluks

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were identified through the BDO's and Primary Health Centers. In the identified taluks, two blocks namely Alanganallur and vadipatti were selected purposively because of low economic status. In each block, three villages were selected randomly. In each village 30 women respondents were selected randomly. Totally, 180 women were finally selected to constitute the study. Baseline survey was conducted to study the existing socio–economic conditions of the rural women and children. The existing dietary pattern and nutritional status also studied through Anthropometry, bio chemical, clinical assessment and dietary survey methods. Nutritional requirements were assessed through participatory approaches like Focus Group Discussion, PRA Methods and Group meetings.

RESULTS AND DISCUSSION

The nutritional status and the requirements of women and children were assessed by different methods and the results are given below.

Anthropometry method (Body Mass Index)

The results of the study summarized in fig.1 indicated that 44.44 per cent of women had normal height and weight, however 36.11 per cent were overweight and 6.11 per cent were obese. Nearly 15.00 per cent of the respondents were also suffering with chronic energy deficiency having less than 18.5 values of BMI. Majority of the women are having normal height and weight with good health conditions. But 42.22 per cent of them are under overweight and obese categories. The overweight is due to improper time of food intake habits and anemic nature were expressed by 36.11 per cent of the respondents. Obese is due to hereditary characters and high intake of fatty, fried and cholesterol food items. The underweight is due to fewer intakes of nutritive foods, fruits, vegetables and balanced diet and they were classified as chronic energy deficiency. Hence, these people need to be concentrated and awareness has to be given on the importance of nutrient required to build our body, balanced diet for the sustainable nutritional security.

Biochemical examination for assessing hemoglobin levels

Based on hemoglobin levels, as suggested by WHO (2004), the women respondents were suffering different degree of anemia and the related data was tabulated in fig 2. Majority of the women had moderate anemia (46.67 %) followed by 31.67 per cent of respondents had mild anemia and 11.67 per cent were suffered with severe anemia *i.e.*, hemoglobin level with less than 7. The lower hemoglobin level may be due to the poor iron intake, poor absorption, assimilation and absence of vitamin C. None of the women comes under normal non-anemic category.

Besides this, the major share of iron was contributed by cereals and pulses and the presence of phytic substances in cereals and pulses reduce the biological availability of iron. It was associated with retarded growth during significant growth periods and provides evidence of greater degree of stunting among the rural women and pointing poorer overall nutritional status among the rural women. This study is in line with the findings of Bhargava *et al.*, (2001).

Fig.1.Nutritional status of women with regard to BMI value

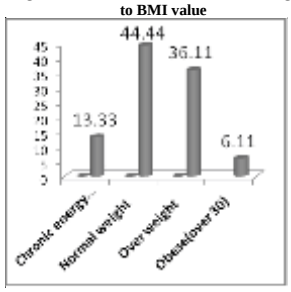
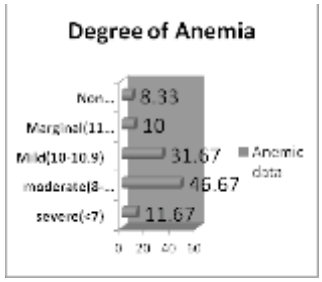


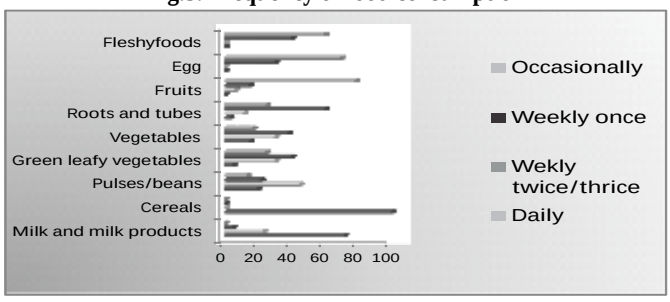
Fig.2.Degree of Anemia among the women respondents



Assessing the food requirement through frequency of consumption

Overall the results showed that, the rice being staple food of south India was consumed daily in their diet. The intake of other cereals is minimum. Among vegetables, few seasonal vegetables were used. Fruits were rarely used. The intake of fruits, some vegetables, nuts and oil seeds and greens are seemed to be low. Apart from regular food groups, while seeing the dietary and intake pattern of other items, even though it is a village area fast foods, junk foods and maida based (parotta) foods are occupying major proportions in the food intake by majority of the women and children and now showing increasing trend. Overall food frequency indicated that the varieties of foods used were very limited and subjects depended mostly on locally grown/available produce. Hence, the major nutritional requirements needed for the respondents are related to iron rich foods, calcium and protein rich foods and millet based food products. Study is in contradictory with the findings of Chandrasekar(1991)

Fig.3. Frequency of food consumption



24 hour recall method to assess the mean daily nutrient intake

Mean daily nutrient intake of the respondents was determined with 24 hour recall method survey and the results were tabulated in table 1. From the data it could be seen that the intakes of all the nutrients were lower than the recommended levels suggested by ICMR (1989). The deficit was more with respect to micronutrients such as iron, vitamin A, riboflavin and free folic acid. The deficit energy intake was 17.63 per cent. The percentage of protein deficit was high compared to energy deficit among the selected group. It might be due to the consumption of higher quantum of cereals and only little consumption of pulses, milk, egg, meat, and other protective foods.

Table 1: Distribution of respondents according to their mean daily nutrients intake

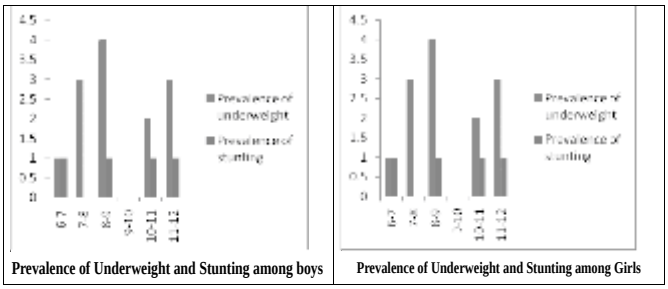
Nutrients	RDA	Actual intake	Excess	Deficit	Deficit Per cent
Energy (Kcal)	1900	1565	-	335	17.63
Protein (g)	55	20.2	-	34.80	63.37
Calcium (mg)	600	250	-	350	58.33
Iron (mg)	21	5.2	-	15.80	75.23
ß-carotene (mcg)	4800	380	-	4420	92.08
Thiamine (mg)	1.0	0.22	-	0.88	88.00
Vitamin –C (mg)	40	22.60	-	17.40	43.50

The percentage of calcium deficit was 58.33 percent. The percentage of iron deficit was 75.23 nearly three-fourth of the respondents. The lower intake of calcium and iron was noted among the selected respondents might be due to the little consumption of milk, green leafy vegetables, meat in their daily diet. The higher percentage of beta-carotene deficit was recorded in the food consumption might be due to inadequate intake of green leafy and other vegetables.

Assessment of nutritional status of Children

The fig.4 it is seen that out of 120 students taken for the study 60 students were boys and 60 students were girls. With regard to prevalence of underweight the results revealed that 28.33 per cent of the boys and 21.66 per cent of the girls seen to be underweight. The girls are little bit better than the boy students due to Sabla scheme functioning in the school which provide iron supplementation and health mix pockets. 6.66 per cent of the girls also seemed to be stunted due to underweight. The consequences of malnutrition in children also include poor physical development and limited Intellectual abilities that diminish their working capacity during adulthood. Mothers of these children should be educated about the importance of balanced diet and the consumption of nutritious foods. Study is in line with the study of Chandra (2006).

Fig.4.Distribution of Children with Underweight and Stunting



Prevalence of Underweight and Stunting among boys | Prevalence of Underweight and Stunting among Girls

Dissemination of Nutrition Knowledge through various extension approaches

To disseminate the nutritional knowledge various extension approaches like home visits, group discussions, series of trainings, demonstrations on low cost nutritious recipes, discussions on importance of growth monitoring and child nutrition, technology week, exhibitions, nutrition week and nutrimela, nutritious quiz competitions, nutrition rally and visit to food industries were conducted and publications were distributed to give awareness among the rural women and children. Six Women Village Nutri Clubs were formed to transfer the nutrition information to the village people. These clubs acted as a medium for the technology transfer and entrepreneurship development in their villages.

Nutri Gardens were established in each household by utilizing the cookery waste material and water from kitchen which increases the availability of greens and vegetables throughout the year for the attainment of nutritional security. Seeds on greens and vegetables, vermin compost and bio-fertilizers were distributed for the motivation and easy adoption. While seeing the adoption of the nutria garden concept, majority of the women (85.00%) raised the garden behind the kitchen and some in the front of the house.

Impact of the interventions interms of knowledge gain

Before and after imparting the nutrition education, the pre and post test was conducted for the respondents to assess the knowledge gain. Totally 60 respondents were selected randomly to conduct both pre-test and post-test. A total of fifteen questions were asked during the test. The same question paper was executed for both pre and post evaluation. While assessing the post knowledge level of the respondents it is very interesting to note that only 8.33 per cent of respondents scored below 5 marks, 43.33 per cent respondents scored between 6-10 marks and 48.33 per cent of total respondents scored marks above 10 after getting nutrition knowledge. The results indicated that over all 2.1 times of quantum of improvement was seen in the knowledge level of the women respondents due to various exposures during the project period. Study is in line with the findings of Vani (2004)

Table 2: Distribution of respondents according to their knowledge level

Category	Knowledge level Per cent	
	Pre- knowledge	Post- knowledge
Low (0 to 5)	37 (61.67%)	05 (8.33%)
Medium (6 to 10)	23 (38.33%)	26 (43.33%)
High (above 10)	-	29 (48.33%)
Mean value of increased knowledge level		
	Average pre-test score	Average post-test score
Score values	4.7 ± 1.93	10.0 ± 2.38
Average knowledge gain	5 (53.37 %)	
Quantum of improvement	2.1 times	

Impact of interventions on Socio-Economic Factors

The other socio economic perceived impacts are given below in table 49.The results revealed that the skill on doing value addition in major food groups has increased to 56.67 per cent. Due to the various exposures during the project period and field visits to value addition entrepreneurs units might be the possible reasons for the skill enhancement. These findings in contradictory with the findings of Hemalatha et al 1998.

Table 3: Impact of interventions on Socio-Economic Factors

Impact of interventions on Socio-Economic Factors	Pre (%)	Post (%)	Difference (%)
Skill Enhancement in Value Addition in major food groups	28.33	85.00	56.67
Decision Making Behaviour to buy nutritious food	31.67	80.83	49.16
Confidence to take up for entrepreneurship activities	33.33	78.33	45.00
Leadership quality increased due to nutri clubs	27.5	70.83	43.33
Consultation by fellow women and technology transfer	19.17	49.17	30.00
Group coordination among the members for taking initiatives	23.33	48.17	24.83
Participation in social activities	13.66	35.00	21.34
Overall mean	**25.28**	**63.90**	**38.62**

The decision making behaviour to buy nutritious food has increased (49.16%) due to exposure during training on the importance of nutrients required in our daily life to build our body and nutritional security. Confidence to take up for entrepreneurship activities and Leadership quality due to nutriclubs was the parameters showing increasing trend ranging from 43.33-45.00 per cent. Consultation by fellow women and technology transfer and group coordination among the members for taking initiatives also the changes due to various extension approaches ranging from 20-25 per cent. The overall perceived socio economic impact is approximately 40.00 per cent. Within the shortest time the women realized the impact up to this much. In future they realize the importance and it will be increased.

CONCLUSION

In order to improve the nutritional status of rural women and children nutritional requirements were assessed. Accordingly, nutrition knowledge was disseminated through various extension approaches. Six Women Village Nutri Clubs were formed to transfer the nutrition information and Nutri Gardens were established in each household for the attainment of nutritional security. The average knowledge gain due to interventions is 53.37 per cent and the overall perceived socio economic impact is approximately 40.00 per cent. Hence, Frequency of consumption of major foods groups and iron rich foods should be increased. Mothers of the children should be educated about the importance of balanced diet and nutritional programmes. Government should introduce awareness programmes through community involvement about the affordable and nutritious foods. It is required to conduct the educational programmes on health and nutritional aspects. Special care must be taken regarding nutritional status of “adolescent girls” (future mothers) in the rural areas. With the help of appropriate mass media, pregnant women and mothers should be educated about nutrition and health and also the general public regarding issues related to health and nutrition.

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