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Nutrition Security Among Women of Command and Non- Command Areas of Kota, Rajasthan

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INTRODUCTION

Food security is achieved, if adequate food (quantity, quality, safety, socio-cultural acceptability) is available and accessible for and satisfactorily utilized by all individuals at all times to achieve good nutrition for a healthy and happy life (Kracht and Schutz, 1999). This definition emphasizes the 'stability','availability', 'accessibility' and 'utilization' of food. In other words, it can be said that food alone is not sufficient to secure a sustainable satisfactory nutritional status and therefore additional aspects; such as health and environment must be considered. Therefore, in the present study nutrition security among women of command and non-command areas of Kota, Rajasthan was studied.

METHODS AND MATERIALS

Out of the five Panchayat Samities in Kota district, two panchayat samities namely Sultanpur (command) and Ladpura (non-command area) adjacent to Kota city were selected. Villages namely Kathoon, Kishanpura from command, Tathed and Kathodi from non command area within 30 km from Kota city were selected for the present study. Fifty women from each area who were non-pregnant, non-lactating, between 25-40 years of age, engaged in farm activities in addition to their household and child care responsibilities and willing to participate were studied. An interview schedule developed and pretested was used to collect the information on farm, live stocks and socio-economic status (Pareekh and Trivedi , 1963) of the families . Dietary survey by 24 hours recall method using standardized cup set for three consecutive days was conducted to assess their food security. Nutrient intake was calculated using food composition table (Gopalan et al.,1989). Body measurements were taken after standarization of the technique to find out their nutritional security.

RESULTS AND DISCUSSION

All the families were Hindu. Majority of the families in command (62%) as well as non-command area (80%) were vegetarian. Forty percent families in command area and 36% in non-command area belonged to nuclear families, revealing that more number of women were from joint families. The average family size in both the areas were six or more but percentage of large families (81%) were more in non-command area.

Majority of the families (80%) were taking two crops in a year. Families of command area were growing soyabean (100%) and maize (41%) during Kharif and wheat (100%) and vegetables (41%) during rabi season while the families of non- command area were growing only soyabean and wheat in two seasons, respectively. All the families possessed milking animals (cows and buffaloes) and their number varied from 1 to 3. None of the families had goat.

The socio-economic status of the families assessed on the basis of caste, occupation, education, social participation, land size, type of house, farm power, material possession and family type and size revealed that majority of the families in command area were from middle class but the number of families belonged to lower or lower middle class were more in non-command area (32%) as compared to command are (12%). The socio-economic status of command area families was better than the non-command area (Table 1).

Table 1: Socio-economic status of families

*Socio-economic categories (SES)**	*Score*	*Percentage of families*	
		Command area (n=50)	*Non command area (n=50)*
Upper Class	> 43	-	-
Upper middle class	33-43	4	-
Middle class	24-32	84	68
Lower middle class	13-23	12	2
Lower class	< 13	-	6

*Pareek and Trivedi (1963)

General dietary pattern showed that three meal pattern was followed by most of the women. Almost all the women were taking tea in the morning with or without chapati of previous night. Lunch was taken at 10-11 a.m. which included chapati with either dal or any seasonal vegetable and butter milk or milk in command area. Almost same pattern of lunch was followed by women of non command area except milk or butter milk, which was consumed by few women to eat with chapati in lunch. The evening meal was taken by the women of both the groups at about 7-8 p.m. after returning from the field and the pattern was almost same as that of morning meal.

The dietary survey revealed that cereal was the only food consumed in more than the amount suggested in balanced diet (>100%; ICMR, 1982) by the women of both the areas. Cereals are the part and parcel of Indian diet and they provide energy and several other nutrients at a very low cost. NNMB surveys conducted in 10 states also observe cereal intake as more than or equal to balanced diet (NIN,1997). Fruits, milk, sugar jaggery and fat, oil were consumed in least amount i.e. <50 percent of the balanced diet. Intake of foods such as pulses, roots, tubers, green leafy vegetables and other vegetables was between 50 to 75 percent of the balanced diet (Fig.1). In NNMB surveys also intake of these foods was less than the recommended amounts.

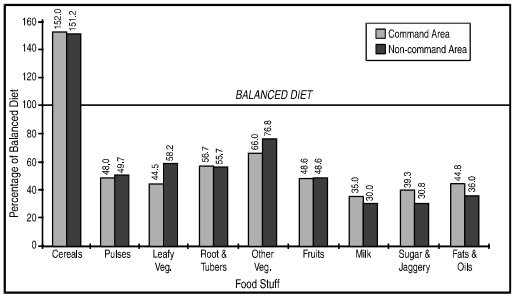

Fig. 1. Food intake by women as percentage of balanced diet

When intake was compared between the two study areas, cereals and fat oil were consumed more by the women of command area whereas leafy vegetables and pulses by the women of non-command area (P<0.05, Table 2). Intake of foods such as roots and tubers, other vegetables, fruits and sugar jaggery was almost same among the women of both the areas.

Table 2: Mean ± S.D. values of food intake by women

Food Groups	*Intake of Food (g/day)*	
	Command area (n=50)	*Non command area (n=50)*
Cereals	469.0 ± 85.0 (50)	424.7 ± 84.0** (50)
Pulses	26.4 ± 4.1 (22.3)	29.8 ± 6.3** (18)
Leafy vegetables	44.5 ± 8.5 (5)	59.3 ± 29.0** (4.6)
Roots and Tubers	40.3 ± 20 (43.3)	41.8 ± 24.1^{NS} (44.3)
Other vegetables	51.1 ± 24.5 (32.3)	57.0 ± 27.3^{NS} (34.6)
Fruits	29.16 ± 5.9 (2.6)	28.9 ± 1.5^{NS} (1.6)
Milk	140.9 ± 80.8 (50)	120.2 ± 70.0^{NS} (50)
Sugar and Jaggery	11.8 ± 4.3 (50)	10.9 ± 5.4^{NS} (50)
Fats and oils	15.7 ± 4.2 (50)	10.8 ± 9.1* (50)

Values in parenthesis are the number of women who consumed the food on the days of survey.
Level of significance: NS - Non-Significant
* - P <0.05
** - P < 0.01

Intake of nutrients, when expressed as percentage of RDA (ICMR, 1990) was adequate for protein, calcium, thiamin, and niacin among the women of both the areas. It may be due to the fact that the women were consuming cereals in large amount. Women of command area in addition were taking fat in adequate amount. Energy, iron and riboflavin were take by the women of both the areas in moderately inadequate amount (70-80%) and vitamin C and β carotene in substantially inadequate amount (>50%, Fig. 2). Mean intake of all the nutrients except β-carotene was significantly higher among the women of command area then those of non command area revealing better nutrient security among the women (Table 3).

Body weight, height, body mass index and skinfold (bicep, tricep, subscapular and suprailliac) measurements were almost similar among the women of two areas (Table 4). However chronic energy deficiency (CED) was more prevalent among the women of non command area (Table 5). It may be due to adoption of women on low nutrient diet either by reducing their BMR phy-

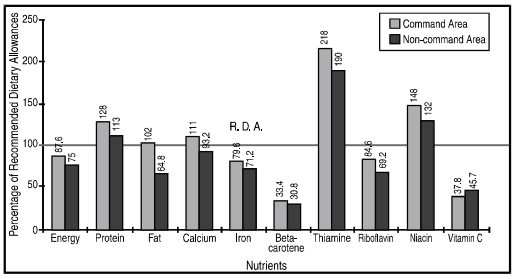

Fig. 2. Nutrient intake by women as percentage of recommended dietary allowances

Table 3: Mean ± S.D. values of nutrient intake by women

Nutrients	*Command area (n=50)*	*Non Command area (n=50)*
Energy (kcal)	1949.50 ± 211.33	1668.70 ± 226.09**
Protein(g)	64.20 ± 7.14	56.83 ± 7.62
Fat	30.64 ± 7.56	19.46 ± 6.66**
(Visible Fat) (g)		
Calcium (mg)	444.40 ± 99.30	373.18 ± 71.02**
Iron (mg)	23.90 ± 2.70	21.39 ± 2.77**
β-Carotene (μg)	802.50 ± 408.40	741.05 ± 593.53NS
Thiamine (mg)	2.40 ± 0.27	2.174± 0.58**
Riboflavin(mg)	1.11 ± 0.15	0.958± 0.14**
Niacin (mg)	20.8 ± 2.30	18.59 ± 2.38**
Vitamin C (mg)	15.2 ± 7.40	18.3 ± 8.50

Level of significance: NS -Non-Significant
* - P < 0.05
** - P < 0.01

Table 4: Anthropometric measurements of women

Measurements	*Command area*	*Non command Area*
	Mean ± S.D	*Mean ± S.D*
Weight (Kg)	50.61 ± 6.82	48.28 ± 6.20
Height (cm)	152.58 ± 5.00	152.45 ± 3.86
Skinfold Thickness (mm)		
(a) Bicep	6.68 ± 1.9	7.09 ± 2.4
(b) Tricep	10.4 ± 2.2	10.23 ± 3.2
(c) Suprailiac	23.7 ± 7.1	22.81 ± 7.6
(d) Subscapular	11.6 ± 2.2	10.7 ± 2.6
Body Mass Index	21.80 ± 2.92	20.79 ± 2.70

sical activities or efficient utilisation of energy and other nutrients.

The above results reveal a better nutrition security among the women of command area than those of non command area. Nutrition security at national, regional and household level is the corner stone in improving the nutritional status of millions of people who suffer from hunger and lack of nutritionally adequate diet.

Table 5: Prevelance of chorinic energy deficiency

Body Mass Index categories	*Grades of chronic energy deficiency*	*Percentage of Women*	
		Command area	*Non command area*
17.0-18.4	CED Grade-1	2	6
18.5-20.0	Low Weight Normal	14	18
20.0-25.0	Normal	84	76

KEY WORDS Agriculture. Nutrition Occupation. Anthropometry.

ABSTRACT In India, agriculture is the main stay of the economy which in turn is affected by the vagaries of rainfall, if irrigation facilities are available production will be more, resulting in better nutritional status of people. Therefore the present study was conducted on women of command and non command areas of Kota, Rajasthan. Hundred non pregnant and non lactating women between the age of 25 and 40 years engaged in farm activities in addition to their household and child care practices were studied. Interview schedule was developed to collect the information Nutritional status was assessed by dietary survey (Twenty four hours recall method) and anthropometric measurements. The findings indi-cated that in command areas more number of families had better socio economic status, significantly higher intake of all the nutrients except β-Carotene and comparatively less prevalence of chronic energy deficiency (2%) than in non command area (6%). It is concluded that there was better nutrition security among the women of command area than those of non command area.

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