



## SOCIO-ECONOMIC CHARACTERISTICS, FOOD HABITS AND DIETARY INTAKE OF RURAL WOMEN IN BANGALORE RURAL DISTRICT OF KARNATAKA

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### ABSTRACT

The present study on socio-economic characteristics, food habits and dietary intake of rural women was conducted in selected villages of Bangalore rural district in Karnataka state. The selected villages were Heggadehalli of Doddballapur taluk and Venkatahalli of Devanahalli taluk during the year 2013-14. The data was collected from the 200 rural women using semi structured interview schedule. The collected data was analysed using appropriate statistical tools. The results of the study revealed that, majority of the rural women belonged to the age group of 21-25 years, the percentage of nuclear families were more compared to joint families with medium family size (4-6 members), only 33% of them were illiterates. Majority of the rural women were marginal farmers (63%) and earn an average monthly income between Rs. 2,000-3,000 per month. The average annual income of the rural families was Rs. 38,260 from agriculture and allied activities. There was a considerable difference in monthly expenditure on food and non food items due to significant difference in economic status. All the rural families were non-vegetarians by habit; animal based foods were consumed twice a week by 49 per cent of the families. It was observed that majority of the rural families consumed 3 meals per day and only 18 % of the families consumed 2 meals per day. The diet of the rural families was monotonous, lacking variety and they care more for bulk rather than quality of the diet. Nutrient intake of rural women was compared with RDA. The intake of all nutrients *viz.* energy, protein, fat, iron, thiamine, riboflavin, niacin and  $\beta$ -carotene were low except for calcium. The per cent adequacy of nutrients was inadequate. The statistical analysis showed highly significant difference in 't' test at 1 per cent level. Education, land holding, income and age had significant and positive association with nutrient intake among rural women groups.

**KEYWORDS:** Dietary intake, Food Habits, Rural women and Socio-economic characteristics.

### INTRODUCTION

The status of women in a society is the indicator of progress. The varied roles of women as mother, home maker and productive workers are the sustaining force of families, communities and nation. According to 2011 census, the population of women in India was 405.1 million and in Karnataka the same was 34 million and out of these, 28 million women belong to rural area. The primary sector *i.e.* agriculture provides work for about 78 % of them and out of this, 22% are cultivators (Anon, 2011). Rural women always play a dual important role in the society. Though her role in the society is very important, she is rarely physically visible, conceptually invisible and ever remains marginalized. The best way to make optional use of human resources is to provide them opportunities for self-development through training, which improves the existing knowledge and skill, enhances capability, and improves the competency to meet the challenges of the society and technology (Meera *et al.*, 2001). The existence of women in a state of economical, political, social and knowledge dis-empowerment is known to be a major hindrance to economic development. Without the power to work and earn good income, their voices are silenced. Economic independence or access to

an inherited or self generated income is considered as the major means of empowerment of women. Enhancing women's economic productivity is an important strategy for improving the welfare of 60 million Indian households living below the poverty line (Sowmya *et al.*, 2012). Not much importance has been given for systematic analysis of socio-economic status, nutrient status and dietary intake of the rural women. Thus it is felt necessary to know the social and economic characteristics of women, their food habits and also nutrient status. With this background the present study was undertaken with an objective to know the Socio-economic characteristics, Food habits and dietary intake of rural women in Bangalore rural district of Karnataka.

### METHODOLOGY

The present study on socio-economic characteristics, food habits and dietary intake of rural women was conducted in selected villages of Bangalore rural district in Karnataka state. The selected villages were Heggadehalli of Doddballapur taluk and Venkatahalli of Devanahalli taluk during the year 2013-14. The villages selected come in the frame work of the project on "Partnering with higher education in India for improving nutritional quality of

food by biotechnology approaches” funded by USAID. Ninety rural women from Heggadehalli village and 110 rural women from Venkatahalli village were selected randomly for the study, thus making a total sample of 200 respondents.

A pilot study was conducted to determine the feasibility of the study and validity of the questionnaire. The pilot study was conducted on 10 per cent of the sample size. The study used both qualitative and quantitative assessment measures. The data was collected from the respondent rural women using semi structured interview schedule developed for the study. The collected data was tabulated and analysed using appropriate statistical tools like frequency, percentage, mean, standard deviation correlation etc.

## RESULTS & DISCUSSION

### Socio-economic characteristics of rural women

Socio-economic characteristics of rural women were depicted in Table 1. It was observed that majority of rural women were found to be in the age group of 21- 25 years, followed by 26- 35 years. Middle aged women are generally enthusiastic and innovative nature. The young women will be having the indication to take risks and need for achievement in general. The findings are in conformity with those findings of Ganeshamurthy *et al.* (2004) and Tara and Negi (2012) who have revealed that majority of the rural women belonged to middle age group. Most of the rural women (33.00 %) were literates i.e., 34 per cent of them had primary school followed by 12 per cent secondary school, 14 per cent had high school level of education, and remaining 7 per cent of the rural women were graduates. These findings are in line with the findings of Mamatha and Chaya (2012) who observed that majority of rural women studied up to primary school level. Occupation of the rural women that is 26 per cent of them were housewives, 40 per cent of them labourers, 24 per cent of them were involved in dairy, 6 per cent in sericulture and 4 per cent in other activities. These findings are in line with George *et al.* (2009) and Gurumeeet and Gurudarshan (2011). It was observed that majority of the rural families (63%) were marginal farmers, 16 per cent of them were small farmers, 11 per cent of them were medium farmers and only 10 per cent were large farmers.

Land holding of the subjects indicated that majority of them belonged to the marginal land holding category (63%) followed by small farmer category (16%). It clearly indicates that the low economic status particularly rural women have low earning power and also may be because of the fragmentation and subdivision of agricultural lands by the members of the family. The findings of the present study agree with the findings of Revanna (2006) and Raksha *et al.* (2012). From the same table it is clear that 16 % of the rural families’ income ranged between Rs. 2,000-3,000, followed by 56 per cent with the income of Rs. 3,000 per month. And only 28 per cent of the families are in the range of Rs.4,000- Rs.5,000. These findings have also been observed by Chethana (2005) and Mamatha and Chaya (2012) who reported that a majority of the landless (84.00 %) and marginal (72.00 %) households had income in the range of Rs. 685 to Rs. 3,585 per month.

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The total income of the rural women comes from various sources namely land, livestock, labour wages, sericulture, petty business and small-scale entrepreneurship for the annual income of Rs.38,260.00 per annum (Table 2). This might be because of multiple source of income among the rural families. Their findings are on par with values reported by Das and Mishra (2012). Hence, there is an urgent need to educate the women about their strength, skill training particularly to motivate them, sufficient loans should be provided to them and also marketing is required to sustain their interest. Along with this the family member awareness should be improved about the importance of the economic support by the women in the family. The result has been in line with the study conducted by Mamatha and Chaya (2012) who pointed that monthly workshops should emphasis more and more on skill teaching and field visits besides being a forum for exchange of technical information.

The average monthly expenditure on food items of the rural families are presented in Table 3. The percentage of expenditure on food items like cereals and millets was higher compare to pulses as they are staple food. Expenditure of fruits and vegetables, milk and milk products, oils and fats, sugar and jiggery, meat and eggs were considerably low among the rural families. The reason was clear that rural families’ annual income was moderate and education level was also low. With respect to expenditure of non food items majority of the rural women spent more for festivals and ceremonies. These findings are line with the study conducted by Rooparani (2011).

### Food habits and dietary intake of rural women

Food habits of the rural families are shown in Table 4. It was observed that, all the rural families were non-vegetarians by habit, food of animal sources were being consumed twice a week by 49% of the families, followed by once a week (18.5%) and fortnightly (32.5%). These findings are in line with the observation of Shree Tulasi (2005) and Vijayalakshmi *et al.* (2008) who observed that majority of the rural families were non-vegetarians and consumption of all commodities was much lower than the RDA.

It is clearly evident from the same table that 82 and 18 per cent of the rural families consumed two or three meals respectively. Majority of the households were in the habit of preparing the food twice a day.

### Dietary intake

Nutritional status usually measured by anthropometry was found to be influenced by large number of factors. One of the important factors is food consumption. The meal pattern and the foods actually consumed by the rural women were recorded for three different alternate days during the entire period of study.

The diet of the rural families was monotonous lacking variety and they care for more bulk rather than quality of the diet. The common meal pattern of the rural families was cereal for breakfast and rice with vegetables or dhal and finger millet dumpling for dinner. The mean intake of nutrients by women namely, protein, fat, energy, calcium, iron, -carotene, thiamine, riboflavin and niacin are

presented in Table 5. The adequacy of nutrients was below recommended dietary allowances. The deficit of nutrient intake of rural women was compared with RDA. Intake of energy 1850 kcal, protein 35.3 g, fat 16.3 g, iron 15.7 mg, thiamine 0.9 mg,  $\beta$ -carotene 3600 mg, riboflavin 0.8mg and niacin 11mg were low. But calcium (695 mg) intake was higher compared to RDA due to the consumption of finger millet which is the staple crop. These findings fall in line with the findings reported by Radhai (2000) who reported that majority of the rural women were deficit in all the nutrients. An increment in food intake is always associated with an increment in energy intake. It was observed that the mean intake of energy by women in the study group were not up to the recommended levels. The findings reported by Dobhal and Raghuvanshi (2011) found that energy intake of rural women was less than recommended dietary allowances.

The per cent adequacy of nutrients is also presented in the same Table and Fig. 6. Majority of the rural women had 64 per cent adequacy of protein, 65 percent fat adequacy, 83% energy, 70 % iron, 72 % thiamine, 72 % riboflavin, 78 % niacin and 75 %  $\beta$ -carotene respectively. However, the entire rural respondents met 100 % adequacy of calcium intake. The % adequacy of rural women in energy intake was observed to be higher when compared to protein intake. However, the diet of rural women was both deficient in calories and protein. This statement is in conformity to the observations made by Pushpa *et al.* (2008) who reported that the diet of south farm women was both deficient in calories and protein. Iron intake was deficient in rural women (36%). This may be due to less consumption of green leafy vegetables. This observation is in line with the findings of Shree Tulsi (2005) who reported that the intake of iron by farm women was inadequate to meet the daily requirements.

A deficit in the intake of B-complex vitamins especially thiamine/riboflavin was found least in the study group. All the women in the study area had inadequate consumption of B-complex vitamins. The low intake of  $\beta$ -carotene among rural women might be due to less consumption of yellow and orange fruits and vegetables and milk and milk products.

Correlation coefficient of selected socio-economic factors on nutrient intake of rural women is depicted in the Table 6. Women's dietary status was determined by variety of complex factors namely socio-economic characteristics. Factors influencing nutrient consumption were age, education, type of family, size of family, land holding and family income. As age increases the nutrient intake of energy decreases or vice-versa. This may be due to the fact that age is negatively associated with metabolic functions. Hence, there will be lower demand for energy intake.

The type of family has positive influence on nutrient intake. Nuclear families had positive influence whereas joint families had a negative influence on nutrient intake. It is an accepted fact that the dietary status of women from joint families are likely to be poorer than the nuclear families due to more members. The food distribution among many thus reduces the per capita consumption of food giving rise to dietary inadequacies.

Increase in family size decreased the intake of majority of nutrients. The findings are in concurrence with the findings of Masanta and Pradhan (2011) who reported that increase in household size decreased the nutrient intake.

As income increases, intake of energy, protein, fat, calcium, iron, thiamine, riboflavin, niacin and  $\beta$ -carotene also increased. These findings are supported by Rahman and Rao (2001) who reported that as income and education status increases, nutrient consumption also increases.

**TABLE 1:** Socio-economic characteristics of rural women

Sl. No.	Variables	Respondents (n = 200)	
		No.	Per cent
1.	Age		
	21-25 years	130	65.00
	26-35 years	62	31.00
	36-40 years	08	04.00
2.	Education		
	Illiterate	66	33.00
	Middle school	68	34.00
	High school	24	12.00
	SSLC	28	14.00
	Graduate	14	07.00
3.	Family type		
	Joint	54	27.00
	Nuclear	146	73.00
4.	Family size		
	Small (upto 3 members)	28	14.00
	Medium (4-6 members)	166	83.00
	Large (7 and above)	06	03.00
5.	Land holding		
	Marginal farmers (<2.5acres)	126	63.00
	Small farmers (2.5-5.0 acres)	32	16.00
	Medium farmers (> 5.0 acres)	22	11.00

Socio-economic characteristics, food habits and dietary intake of rural women

	Land less	20	10.00
6.	Occupation		
	House wife	52	26.00
	Labourer	80	40.00
	Agriculture with Dairy	48	24.00
	Sericulture	12	6.00
	Other activities	08	4.00
7.	Family Income / month		
	< Rs. 2,000	32	16.00
	Rs.2,000 – 3,000	112	56.00
	> Rs. 3,000	56	28.00
	Total	200	100

**TABLE 2:** Average annual income from different source of the rural families

Source of income	No. @	Income (Rs.)	SD
Agriculture	156	9,560	1,421.60
Livestock	124	8,600	972.00
Sericulture	15	7,600	638.20
Labour wages	72	6,700	2,903.40
Petty business and other sources	80	5,800	2,451.05
Total		38,260	8,386.25

@ Multiple response

**TABLE 3:** Average monthly expenditure of the families (n=200)

Items	Amount in Rs.	SD	Percent
Food Items			
Cereals and millets	850	134.54	45.0
Pulses and legumes	182	56.73	06.30
Fruits and vegetables	215	72.01	7.50
Milk and milk products	150	105.89	8.08
Meat and eggs	105	102.89	04.10
Oils and fats	140	50.40	02.40
Sugar and jaggery	125	32.84	04.50
Total	1767	553.30	77.88
Education	46	126.55	01.45
Health	60	55.50	2.50
Festivals and ceremonies	65	59.65	2.80
Clothing	50	76.50	5.00
Recreation	50	56.11	1.60
Transportation	65	52.10	2.50
Soaps and detergents	45	32.10	1.80
Cigarette /Beedi/Pan/Liquor	60	52.65	2.40
Total	441	510.86	20.05

**TABLE 4:** Dietary pattern of rural women

Food pattern	Intervals	Respondents	
		No.	Percent
Food habit	Vegetarian	20	10
	Non-vegetarian	180	90
	Weekly once	37	18.5
Frequency of Non-veg. Consumption	Weekly twice	98	49
	Fortnightly	65	32.5
Number of meals consumed per day	Two	36	18
	Three	164	82
Number of times meal prepared per day	Twice	172	86

	Thrice	28	14
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**TABLE 5:** Mean daily nutrient intake of rural women in comparison with RDA n=200

Nutrients	RDA	Intake		Per cent adequacy	't' value
		Mean	SD		
Protein (g)	55	35.3	12.5	64	39.94**
Fat (g)	25	16.3	7.9	65	29.18**
Energy K-cal	2230	1850	442.3	83	59.15**
Calcium (mg)	600	695	117.6	116	83.58**
Iron (mg)	21	14.7	8.1	70	14.14**
-Carotene (mg)	4800	3600	8175.8	75	62.25**
Thiamin (mg)	1.1	0.8	0.4	72	31.82**
Riboflavin (mg)	1.3	0.8	0.3	72	37.71**
Niacin (mg)	14	11.0	4.2	78	37.04**

\*\* Significant at 1%

**TABLE 6.**Correlation Co-efficient of independent variables on nutrient intake of rural women

Independent variables	Correlation co-efficient (r) with nutrients								
	Protein	Fat	Energy	Calcium	Iron	Thiamine	Riboflavin	-carotene	Niacin
Age	0.02412	0.04404	0.06121	0.04857	0.04657	0.056	0.037274	0.0629	-0.0146
Family type	-0.033568	-0.03538	0.02046	-0.0551	-0.02467	-0.0271	-0.029	0.00042	-0.0077
Family size	-0.005654	-0.00769	0.01712	0.00232	0.01059	0.0009	-0.02172	-0.0476	0.1198
Education	0.10407	0.09571	0.12069	0.10697	0.11373	0.1057	0.12017	0.11343	-0.0379
Land holding	0.1976	0.19296	0.17591	0.19709	0.20659	0.1953	0.183081	0.11967	0.0381
Income	0.413187	0.37984	0.41276	0.36704	0.41501	0.429	0.413679	0.33565	-0.1669

## CONCLUSION

It can be concluded from the results of the study that, majority of the respondents belonged to the age group of 002021-25 years belonging to nuclear families with no formal education and having small and marginal land holdings. The average annual income of the farm families was found to be Rs. 38,260 from agriculture and allied activities. The diet of the rural families was monotonous, lacking variety and they care more for bulk rather than quality of the diet. Nutrient intake of rural women was compared with RDA. The intake of all nutrients viz. energy, protein, fat, iron, thiamine, riboflavin, niacin and -carotene were low except for calcium. Hence there is a need to conduct awareness programmes regarding benefits of taking quality food with necessary micro-nutrients. The developmental departments, NGOs and others involved in women development should formulate appropriate strategies for improving the dietary intake by the rural women. There is a need to organize intensive extension activities for the benefit of the rural women on food and nutrition.

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