

## **A study on the demographic profile, frequency of food consumption and nutrient intake of the Chettiar Community**

**R. JENIFER CHRISTABEL<sup>\*1</sup> AND D. ANNETTE BEATRICE<sup>2</sup>**

<sup>2</sup>Associate Professor

Department of Home Science, Women's Christian College  
Chennai (T.N.) India

### **ABSTRACT**

Chettinad is a region located in the state of Tamil Nadu. The Chettiars who are the residents of Chettinad are considered to be the pioneers of banking. From cuisine, architecture, furniture and customs, the rich and well-travelled Chettiars evolved a unique style combining western and eastern sensibilities. The present study aimed to determine information on the demographic profile, dietary pattern and nutrient intake of the Chettiar community. The results of the experimental study revealed that though the Chettiars were pioneers in the banking sectors, they were also involved in other occupations of low socio-economic status. The traditional joint family system has been not in practice in many of the households because of various reasons. The dietary pattern and nutrient intake of the subjects revealed that the macronutrient intake was more than the RDA. With regards to intake of vitamins, the intake of carotene (Male-4.2; Female-6.8), thiamin (Male-9.2; Female-2.66), riboflavin (Male-3.98; Female-1.56), vitamin C (Male-127; Female-133), niacin (Male-23; Female-21), was higher for both male and female when compared to the RDA. The minerals such as calcium (Male-2654; Female-1043), magnesium (Male-593; Female-717) and iron (Male-25; Female-27) also was higher in both male and female when compared to the RDA

**Key Words :** Chettiar community, Kavuni rice, Socio-economic status

### **INTRODUCTION**

Rice is an important staple food crop for human health because it provides the bulk of calories for more than half the world's population. High consumption of rice which is considered to be food with high glycemic potential was found to be associated with increased risk of type II diabetes (Hu *et al.*, 2012; Nanri *et al.*, 2010).

Chettinad is a region located in the state of Tamil Nadu. Chettinad is known for its spicy food and is renowned for the mouth-watering Culinary delicacies. The people of Chettinad learnt to prepare a type of rice pudding made with sticky red rice through their mercantile contacts with Burma (Kamra, 2013). Even today, the cuisine is an integral part of the Chettinad life.

**How to cite this Article:** Jenifer Christabel, R. and Annette Beatrice, D. (2018). A study on the demographic profile, frequency of food consumption and nutrient intake of the Chettiar Community. *Internat. J. Appl. Soc. Sci.*, 5 (6) : 697-704.

**Objectives of the study :**

1. To elicit general information regarding age, occupation, and income of the Chettiars.
2. To assess the dietary pattern and intake of nutrients among the Chettiar community.

**METHODOLOGY**

**Design of the study :**

This study is an experimental research. An interview schedule was used to elicit general information and to study the dietary pattern of the subjects collected using 24-hour dietary recall for three non-consecutive days which includes one weekend and two weekdays. The nutrient intake of the subjects was calculated using Annapurna Software.

**Sample size :**

– Seventy subjects from Chettiar community were selected based on their willingness to participate in the study.

**Criteria for selection of sample :**

- Subjects willing to participate in the study.
- Subjects in the age group of 20 to 60 years.

**RESULTS AND DISCUSSION**

The present study was designed to elicit general information, frequency of food consumption and nutrient intake of the Chettiar community. Seventy subjects were selected based on their willingness to participate in the study and their general information, dietary habits was elicited using an interview schedule and the nutrient intake was calculated using Annapurna Software.

**General information :**

The data regarding the age, gender, educational qualification, occupation, and income of the subjects was elicited using an interview schedule.

**Age :**

From Table 1, it is seen that 34 per cent of the subjects fall under the age group of 20 to 30 years, 26 per cent of the subjects fall under the age group of 30 to 40 and 24 per cent of the subjects fall under the age group of 50 to 60 years. Sixteen per cent of the subjects were in the age group of 40 to 50 years. Among the 100 per cent of the subjects, about 69 per cent of the subjects are females and 31 per cent of the subjects are males.

**Table 1 : Percentage distribution of subjects according to age**

Age	Number	Percentage
20 – 30	24	34
30 – 40	18	26
40 – 50	11	16
50 – 60	17	24

**Educational qualification :**

From Table 2, it can be seen that 27 per cent of the subjects have done their under graduation.

Sixteen per cent of the subjects are Post Graduates and 11 per cent of the subjects are illiterates. Lower educational attainment has been considered as a predictor affecting poor health outcomes and management of chronic disease (Choi *et al.*, 2011).

**Table 2: Percentage distribution of subjects according to educational qualification**

Educational qualification	No.	%
Illiterate	8	11
Primary school	15	21
Higher secondary	17	24
UG	19	27
PG	11	16

### Occupation :

Table 3 shows that seven per cent of the males and four per cent of the females are working in bank sectors, 7 per cent of the male subjects are doing business and 6 per cent of the female subjects are teachers. About 14 per cent of the males and 17 per cent of the females are students. Equal per cent (1%) of the male subject is working in office, pharmacy, private companies, and as finance manager. Some subjects in the community work as kooli (Male-10, female-4), household works (Female-10%), homemakers (Female-6%), and tailors (Female-2%). The Chettiars were pioneers in banking systems as they were the earliest to introduce the idea of credit and debit in bookkeeping. The Chettiars were highly regarded for their business acumen and value, integrity and honesty in conducting business, economical influence, banking systems and culture. The Chettiars are a very forward-thinking community in terms of outlook and have ventured into many top fields such as medicine, engineering, law, dentistry, and entrepreneurship since their rise as a money lending and business-oriented community (Somasundaram and Ramanathan, 2017).

**Table 3: Percentage distribution of subjects according to occupation**

Occupation	Male		Female	
	No.	%	No.	%
Government	1	1	0	0
Bank	5	7	3	4
Finance Manager	1	1	0	0
Teacher	0	0	4	6
Business	5	7	0	0
Private Company	1	1	0	0
Office	1	1	0	0
Pharmacy	1	1	0	0
PG Student	10	14	12	17
Driver	0	0	1	1
Iron Work	0	0	1	1
Kooli	7	10	3	4
Tailor	0	0	2	3
Watchman	1	1	0	0
Housewife	0	0	7	10
Housework	0	0	4	6

**Work type :**

From Table 4, it is seen that 63 per cent of the subjects are moderate workers. About 27 per cent of the subjects are sedentary workers and only 10 per cent of the subjects are heavy workers. A sedentary lifestyle is a significant risk factor for chronic diseases. Physically active people generally outlive those who are inactive, and inactivity is almost as significant a risk factor for heart disease as high blood pressure, smoking or high blood cholesterol (Insel, 2014).

**Table 4 : Percentage distribution of subjects according to work type**

Work type	No.	%
Sedentary	19	27
Moderate	44	63
Heavy	7	10

**History of disease :**

The percentage distribution of the subjects according to the History of disease is given in Table 5.

**Table 5 : Percentage distribution of subjects according to history of disease**

Disease	Parents		Gran Parents		Siblings	
	No.	%	No.	%	No.	%
Diabetes	17	24	20	29	7	10
Cancer	0	0	1	1	2	3
Obesity	1	1	0	0	2	3
CHD	0	0	0	0	0	0
Hypertension	5	7	1	1	2	3
Kidney Disease	0	0	0	0	1	1
Liver Disease	0	0	0	0	0	0
Thyroid	1	1	0	0	0	0
None	50	71	49	70	59	84

Table 5 shows that majority of the parents (71%), grandparents (70%) and siblings (84%) do not have the family history of non-communicable diseases. It is evident that 24 per cent of the parents, 29 per cent of the grandparents and 10 per cent of the siblings are suffering from diabetes. Non-communicable diseases are the leading global cause of death and disproportionately afflict those living in low-income and lower-middle-income countries (LLMICs) (Williams *et al.*, 2017). These diseases are likely to become more prevalent as risk factors become more common (Finney *et al.*, 2013).

**Socio-economic status :**

Table 6 reveals that about thirty-one per cent of the subject's family income is above Rs. 20,000. Fifty per cent of the subjects earn only Rs. 5000 to 10,000. Only four per cent of the subject's family income is Rs. 10,000 to 15,000. Eighty-one per cent of the subjects belong to nuclear family, 11 per cent belong to joint family and the remaining 7 per cent belong to extended family. Socio-economic status and its constituent elements are accepted as being determinants of health (Rabi *et al.*, 2006). Low income has been shown to be an independent risk factor for the development of diabetes among women even after controlling for body mass index and physical

activity level (Winkelby and Cubbin, 2003). Diabetes may be upto two times more prevalent in low income populations compared to wealthy populations (Stelmach *et al.*, 2005). Family structure and composition are social determinants that may also affect health behaviors and outcomes. It has been seen that the traditional joint family system is declining and that it is being replaced by nuclear family system in all over the world (Das, 2012).

Table 6: Percentage distribution of subjects according to socio-economic status		
Income	No.	%
5,000-10,000	35	50
10,000-15,000	3	4
15,000-20,000	10	14
Above 20,000	22	31
<b>Family Type</b>		
Nuclear	57	81
Joint	8	11
Extended	5	7

#### Frequency of food consumption :

The frequency of consumption of cereals, pulses, vegetables, fruits, fats and oils were assessed using a questionnaire and the results revealed that 84 per cent of the subjects consume rice daily. About 59 per cent and 44 per cent of the subjects consume wheat and broken wheat frequently. Rava and rice are consumed by 63 per cent and 7 per cent of the subjects occasionally. Fifty per cent of the subjects never consume oats. Regarding pulse consumption, 17 per cent of the subjects consume red gram dhal in the form of sambar and 1 per cent consume soya bean daily. Green gram dhal in the form of kootu and black gram dhal in the form of breakfast items like idli, dosa is consumed by 76 per cent and 71 per cent of the subjects frequently. Fifty-one per cent of the subjects never consume soya bean, while seven per cent of the subjects do not consume bengal gram dhal and black gram dhal. With respect to Green leafy vegetables, one per cent of the subjects consumes spinach and cabbage daily. About 63 per cent of the subjects consume cabbage frequently. Only 4 per cent of the subjects consume carrot daily and one per cent of the subjects consume beetroot daily. The majority (83 %) of the subjects consume carrot and potato frequently. Sixty-three per cent of the subjects consume tomato daily and 14 per cent of the subjects consume brinjal daily. The majority (76 %) of the subjects consume ladies finger and 60 per cent of the subjects consume drumstick and brinjal frequently. Around 39 per cent of the subjects consume cauliflower occasionally whereas nine per cent of the subjects consume ladies finger occasionally. Nine per cent of the subjects never consume cauliflower because of strong flavor and 3 per cent of the subjects do not consume brinjal. Milk (71%) is consumed daily by majority of the subjects while the daily consumption of paneer is only by 1 per cent of the subjects. Frequently butter, cheese and cream is consumed by 37 per cent of the subjects. Ice cream and milk is consumed by 59 per cent and 6 per cent of the subjects occasionally. Most of the subjects never consumed cream (49%) and ice cream (10%). With respect to meat and meat products, 4 per cent of the subjects consumed eggs and 3 per cent of the subjects consumed crab daily. Fifty-seven per cent of the subjects consumed egg and 47 per cent of the subjects consumed chicken frequently. With respect to sea foods, 37 per cent of the subjects consumed fish and crab frequently. Only 3 per cent of the subjects consumed crab daily. Forty-one per cent of the subjects use sunflower oil and 4 per cent

**Table 7 : Mean nutrient intake of the subjects**

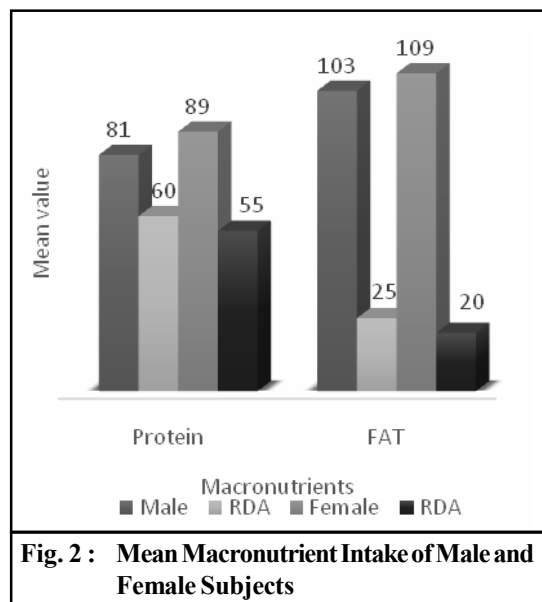
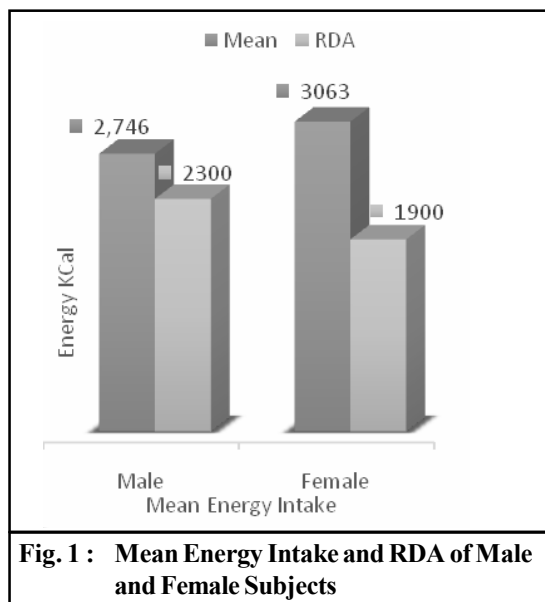
Nutrients	Male		Female	
	Mean	RDA	Mean	RDA
Energy (Kcal)	2746	2300	3063	1900
Protein (g)	81	60	89	55
Fat (g)	103	25	109	20
Carbohydrates(g)	609	130	428	130
Fibre(g)	31	25	37	25
Carotene (mg)	4.2	0.6	6.8	0.6
Vitamin B6 (mg)	0.4	2.0	0.22	2.0
Vitamin A (mg)	1.2	4.8	1.818	4.8
Folic Acid(mg)	0.36	0.2	0.266	0.2
Thiamin (mg)	9.25	1.2	2.66	1
Vitamin B12 (mg)	0.007	1	0.004	1
Riboflav-in (mg)	3.98	1.4	1.564	1.1
Vitamin C (mg)	127	40	133	40
Niacin (mg)	23	16	21	12
Choline (mg)	860	550	545	425
Calcium (mg)	2654	600	1043	600
Potassium (mg)	4318	4700	2533	4700
Phosphorous(mg)	3034	700	1864	700
Magnesium(mg)	593	340	717	310
Sodium (mg)	6775	1500	6508	1300
Copper (mg)	2.83	0.9	3.15	0.9
Iron (mg)	25	17	27	21
Zinc (mg)	9.03	12	10.1	10

of the subjects use mustard oil daily. Frequently 56 per cent of the subjects use gingelly oil and 47 per cent of the subjects use ghee.

#### **Nutrient intake of the Chettiar Community :**

A 24-hour recall method done for three non-consecutive days was used to assess the nutrient intake of the subjects. The mean intake of energy, protein, carbohydrate, fat, fiber, vitamins and minerals were calculated using the Annapurna Software and is presented in the table below.

Table 7, Fig. 1 and Fig. 2, shows that the mean energy intake of the subjects was 2,746 Kcal for male and 3063 Kcal for female, which is higher than the RDA. The mean consumption of protein for both male (81g) and female (89g) were also more than the RDA. The increase in the protein content is because of the higher intake of fish. The mean fat intake of the subjects was 103g for male and 109g for female which was much higher than the RDA. This indicates that the intake of fat is high among the Chettiar community. They use lot of oil in their preparations and consume snacks that are fried. The carbohydrate consumption of the subjects was 609g for male and 408g for female. With regards to intake of vitamins, the intake of carotene (Male-4.2; Female-6.8), thiamin (Male-9.2; Female-2.66), riboflavin (Male-3.98; Female-1.56), vitamin C (Male-127; Female-133), niacin (Male-23; Female-21), was higher for both male and female when compared to the RDA. The minerals such as calcium (Male-2654; Female-1043), magnesium (Male-593;



Female-717) and iron (Male-25; Female-27) also was higher in both male and female when compared to the RDA. The black rice has a number of nutritional advantages over common rice as it contains higher content of protein, dietary fiber, vitamins, minerals and natural anthocyanin compounds, such as cyanidin 3-glucoside and peonidin 3-glucoside, which possess anti-oxidative and anti-inflammatory activities (Chun Hu *et al.*, 2003).

### Conclusion :

Evidence suggests that sedentary lifestyle and increased intake of meat has been highly linked with developing risks of chronic diseases. Therefore, imparting nutrition knowledge on the subjects about healthy lifestyle and food consumption pattern will help them aware of its benefits and improve the way of living.

### REFERENCES

- Ansted, S.N. (2006). Why Women Live Longer Than Men: Sex Differences in Longevity. *Gend Med.*, **3**:79–92.
- Choi, A.I. *et al.* (2011). Association Of Educational Attainment With Chronic Disease And Mortality: The Kidney Early Evaluation Program (KEEP). *Am. J. Kidney Dis.*, **58**(2): 228–234.
- Chun, Hu, Jerzy Zawistowski, Wenhua Ling and David D. Kitts. (2003). “Black Rice (*Oryza Sativa* L. Indica) Pigmented Fraction Suppresses Both Reactive Oxygen Species and Nitric Oxide in Chemical and Biological Model Systems. *J. Agric. Food Chem.*, **51** (18) : 5271–5277.
- Finney, L.J., Feary, J.R., Leonardi-Bee, J., Gordon, S.B. and Mortimer, K. (2013). Chronic Obstructive Pulmonary Disease In Sub-Saharan Africa: A Systematic Review. *Internat. J. Tuberc Lung Dis.*, **17** : 583–9.
- Hu, E.A., Pan, A., Malik, V. and Sun, Q. (2012). White Rice Consumption and Risk of Type 2 Diabetes: Meta-Analysis and Systematic Review. *British Med. J.*, **344**: E1454.
- Insel, P. *et al.* (2014). Nutrition, 5th Edition, Jones and Bartlett Learning, New Delhi.

- Kamra KK. (2013). *Me Cuisine: You Food A Treatise On Indian Food And Cuisine*, Kanishka Publishers, Distributors, New Delhi.
- Mir.A, (2017). 7 Amazing Health Benefits of Eating Rice, Onlymyhealth Editorial Team.
- Nanri *et al.* (2010). Rice Intake and Type 2 Diabetes in Japanese Men and Women: The Japan Public Health Center-Based Prospective Study. *The American J. Clinical Nutri.*, **92**(6) : 1468-1477.
- Rabi, D.M. (2006). Association Of Socio-Economic Status With Diabetes Prevalence And Utilization Of Diabetes Care Services. *BMC Health Serv Res.*, **6** : 124.
- Somasundaram, Ramanathan (2017). *Arranged Marriage In Malaysia Among Millennial NagaratharNattukottai Chettiars*, The University Of Arizona.
- Stelmach *et al.* (2005). How Education, Income, Control Over Life and Lifestyle Contribute to Cardiovascular Risk Factors in Adults in A Post-Communist Country. *Public Health.*, **119** : 498-508.
- Sureswari Das (2012). The Role of Family in Health and Healthcare Utilization Among Elderly, Department of Humanities and Social Sciences, *National Institute of Technology*, Odisha.
- Williams, J. *et al.* (2017). Socioeconomic status and non-communicable disease behavioural risk factors in low-income and lower-middle-income countries: a systematic review. *Lancet Glob Health*, **5**(3):e277-e289.
- Winkelby, M. and Cubbin, C. (2003). Influence of Individual andNeighbourhood Socioeconomic Status On Mortality Among Black, Mexican American and White Women and Men in The United States. *J. Epidemiol. & Community Health*, **57**:444-452.

\*\*\*\*\*