Research Article

Community Based Study on Calorie Consumption pattern among Sedentary, Moderate and Heavy Workers Families in Rural Area of Pondicherry

K N Prasad[1], Nissar Ahamed[2], Nepolean P[2], Monica P S[2], Nandhini S P[2], Nivetha M[2], V Shalini[2]
[1]Professor and Head, Department of Community Medicine, Dr B R Ambedkar Medical College, Bangalore
[2]Interns, Department of Community Medicine, Shri Lakshmi Narayana Institute of Medical Science, Kudapakkam, Pondicherry

*Corresponding author
Dr K N Prasad
Email: drknprasad2@gmail.com

Abstract: Food is a basic right for all human beings irrespective of their economic or geographic or cultural backgrounds. There is a necessity to find the calorie consumption pattern among the different nature of workers and their families. The objective of this study is to estimate the calorie consumption pattern among of food items, and health status among families of different workers in the rural area of Pondicherry. A community based cross sectional quantitative descriptive study is conducted in rural area of Pondicherry during March to April 2015 among 300 families of sedentary moderate and heavy workers by using pilot tested structure, questionnaire at the door steps of residents. Data are collected on food items used and consumption of different food items for the last 7 days along with other relevant social factors. The study population had 17, 61 and 22 percent families belonging to sedentary, moderate, heavy workers respectively. The per capita per day calorie consumption was 1876   and the differences in calorie consumption among different workers family members were found to be inversely related. Cereals contributed nearly 70 percent of the total calories followed by oils and pulses. There were differences in calories consumption between members of total families to family members suffering from chronic diseases. The calorie consumption of per capita per day was inversely proportional to the nature of the workers family, and size of the family. Periodical assessment is needed to monitor the calories intake in order to maintain the health of all the families..
Keywords: Food Items, Per Capita, per day, Consumption, Community, Sedentary, Moderate, Heavy, chronic disease.

INTRODUCTION

Food is a basic requirement of every individual. Man consumes his food either by cooking or using some other methods. The caloric value of the food item may or may not retain during the process of cooking. Thus the process of cooking is equally important when we are assessing the caloric value of the food. The energy requirements of the different countries have been assessed based on standards established for their reference man or woman considering the above factors [1]. This influences in the global level on consumption of food in different countries or topographic features and climatic conditions, in addition to the types of crops grown.

The energy requirement of the individual varies according to their ethnicity, race, body structure, gender, type of occupation and physical activities involvement. It is assumed that the family members of the workers involved in sedentary, moderate and heavy physical activities will consume the similar amount of calories[1,2]. This is also likely to be influenced by the size of the family members. It is found that nearly 25 to 50% of the family monthly expenditure goes towards food items purchase apart from eating outside or buying ready to eat foods [2-5]. There are lack of studies on the consumption pattern of foods and calories among the different nature of physical activity workers and their families. Hence this study was conducted with objectives to estimate the calories consumption pattern among sedentary, moderate and heavy workers families and chronic disease patients in rural area of Pondicherry.

MATERIALS AND METHODS

This is a cross sectional, quantitative, descriptive and community based study conducted in the randomly selected 4 villages of Pondicherry during the period of March and April 2015. The questionnaire was pilot tested and structured to the objectives of the study. The data includes the family size, structure, physical activity or working nature of family members and their health status, non financial assistance, purchase and consumption of each food items. The data was confined for purchase for last one week (7 days) or previous week and consumption pattern for the same

because it helps the family members to recollect the money spent on buying them.

The sample size in the study was 300 families and data collected at their doorsteps. The purpose of the study was explained to the available family members and their consent was taken before the data collection. The information was collected from reliable and responsible members of the family. The average time taken to complete the data collection was approximately 20 minutes. The reliability and completion of the data verified among ten percent of the families.

Definitions used:
a. Category of food items: for convenient purpose the food items were categorised as cereal, pulses, etc., for the analysis purpose on weekly basis.
b. The families are categorised as sedentary, moderate and heavy workers family if more number of adult family members are doing the similar nature of work [1, 2].
c. The physical activity of the adult family members were categorised as sedentary, moderate and heavy workers.

e. The diet coefficient was applied to family as total calories of the families as a standard procedure. 2 The calories were calculated as sedentary, moderate and heavy working pattern per day separately for men and women respectively [2].
f. the per capita calorie consumption was estimated by dividing the daily calories consumption of the family by the numbers in the respective family size.

Statistical Analysis
Data was analysed by using the Microsoft Excel 2007 version. The proportions, percentages, mean, standard deviation, pro rata per family and capita were calculated for the analysis.

RESULTS
The study conducted among 300 families comprising 1177 people as shown in Table 1. The proportion of male and females were 52 and 48 percent respectively. Majority of the families had 3 to 5 members accounting to 267(88%). The mean number of family members was 4.3+1.4.

Table 1: Distribution of families according to their size and sex wise

Family size	Total no. of families	Male	Female	Total No.(%)
<2	24	21	26	47(3.9)
3	66	114	84	198(16.8)
4	132	283	245	528(44.8)
5	69	164	181	345(29.3)
>6	9	27	32	59(5)
Total	300	609	568	1177(100)

Table 2: Distributions of families according to their family type and ration card.

Type of Family	No. (%)	Yellow Card No. (%)	Pink Card No. (%)	Total No. (%)
Nuclear	256(85)	91(35)	169(65)	260(100)
Joint	44(15)	15(37.5)	25(62.5)	40(100)

Table 3: Distribution of families with predominant type of working

Type Of Work	No. of Families (%)	Total no. of family members (%)
Sedentary	51(17)	221(17.9)
Moderate	183(61)	742(64)
Heavy	66 (22)	214(18.1)
Total	300(100)	1177(100)

Table 4: Distribution of family members total calorie intake with type of workers

Type Of Work	Total Calories	Per Capita Calories	Mean(+SD) calories
Sedentary	378491	1712	7421 (2343)
Moderate	1302761	1755	7171 (2339)
Heavy	414697	1937	6283 (2349)
Total	2093310	1876	6952(2334)

Table 2 shows majority of families are nuclear type and most of them were availing non financial assistance (pink ration card). Sixty one percent of the families belong to moderate physical activity workers accounting for 64% of the total population of the study as shown Table 3. Table 4 depicts the calories consumption of 1177 was 2093310 per day and the per capita calories per day were slightly higher among heavy worker families. However the mean calories consumption per head per day was lower among heavy worker family members.

Table 5: Prevalence of Chronic diseases among family members belonging to different workers and calorie consumption pattern

Type Of Work	No of Families	With Chronic Disease Male	With Chronic Disease Female	Kcal / Day/ family	Mean(+SD) Calories per capita
Sedentary	9	7	5	77995	8666(1634)
Moderate	30	25	11	221267	7374(1838)
Heavy	12	13	12	84386	7032(1437)
Total	51	45	28	383648	7522(1652)

Table 5 shows the prevalence of chronic disease as 62 per 1000 population among family members. The calories consumption shows decline in trend with reference to families of sedentary to heavy physical activity of the family members.
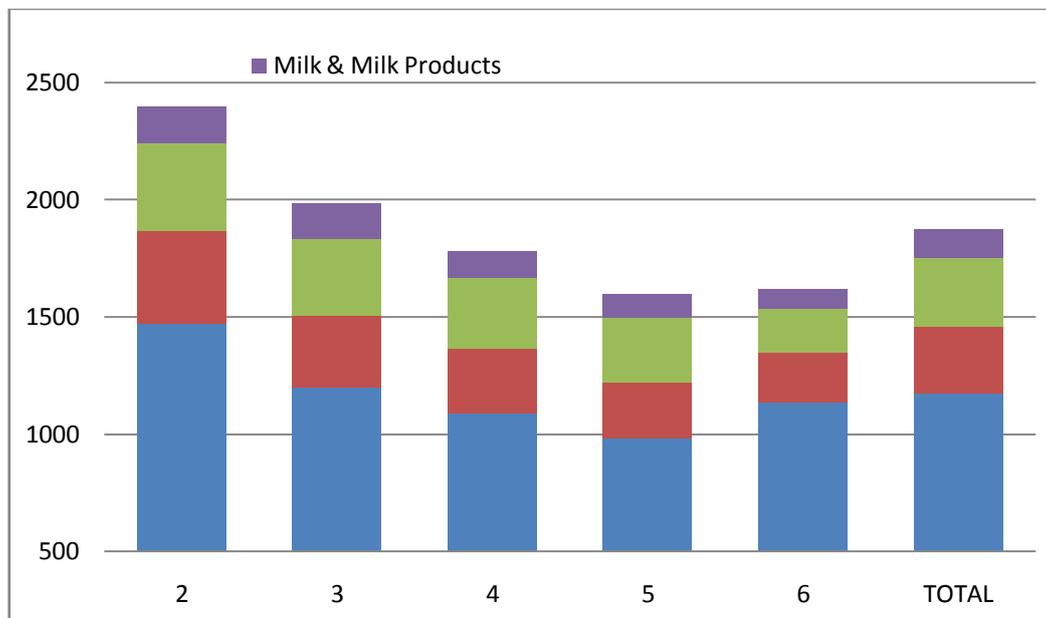

Fig 1: Consumption of per capita of food items as calories per day according to family size

Figure 1 shows the consumption of calories with respect to the food items consumed by their family sizes. Nearly 70 percent of calories consumption in the families was derived from cereals followed by oils and pulses. The consumption showing decline trend as the family size increases from 2 to 6 or more.

DISCUSSION

The nutrients are derived from various food items available either locally or culturally acceptable to the community as required for the family members. The caloric consumption varies according to age, gender, occupation, physical activity of the individual, cooking and eating habits of the individuals, availability of food items, subsidy or concessions given to food items, fortification or enrichment of food items and the success in the implementation of the national programmes [1, 4, 5]. In addition the health status of the individual also determines their nutrition intake such as Diabetes mellitus, Kidney disease, obesity or overweight etc.

The family size in this study population was 4.3+1.4 shows the acceptance to limit their family size to 2 or less by most of them [5, 6]. The study area is in a zone of rapid development hence there is a shift from agriculture or farming background to the moderate or sedentary nature of work. This is likely to determine the energy intake in spite of differences in nature of work as shown in Table 3. Further it is said that the calories requirement per person per day at the global level is

1800 calories which proves the similar quantity in this study [4, 5]. The studies conducted by the NFHS, NSS and other authority's report that the similar observations in terms of intake of calories from food items and percentage contributed by them [5, 6, 7].

The total calories difference between per capita per day and family size of 2 and 6 or more was 777 calories. The study did not calculate the difference in calories consumption between male and females family members. Similarly the detailed analysis was not estimated to know the difference between sedentary, moderate and heavy worker families since the per capita per day or mean values have already shown the trend in figure 1.

The coefficient for the food intake was calculated to determine the approximate quantities of calories for each type of working separately for males and females [2]. The coefficients are also calculated for children and adolescent family members irrespective of their age and sex. This has been considered while the estimation was done for the family members in this study. The differences in the calories consumption in this study were negligible proportions with respect to the family size and type of working in comparison to the mathematically calculated scoring method [1, 2].

There were 51 (17%) families who had 73 people (6.2%) suffering from chronic diseases. Most of them were suffering from Diabetes Mellitus, Hypertension and few from Kidney or Central Nervous system diseases or its consequences. There was differences between the calories consumption among total families population and people suffering from chronic diseases as per capita per day was 6952 and 7522 respectively. This shows that the calories intake was high among the families of sedentary workers who are suffering from chronic diseases compared to heavy workers reflecting financial position and may be the size of the family members.

CONCLUSION
The mean caloric consumption of the study population was   per person per day and the cereals constituted the major contribution towards the caloric proportion followed by oils and pulses. Calorie consumption was inversely proportion to the family size, and families of sedentary to heavy workers.

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