



DIET SURVEY OF THE FAMILIES IN A RURAL AREA- AN OBSERVATIONAL STUDY

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Financial Support: ICMR- Short Term Studentship 2014 Project No: 2014-00327

Conflict of interest: None declared

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How to cite this article:

Nigam R, Tiwari S. Diet Survey of the families in a Rural Area-An Observational Study. Ntl J of Community Med 2015; 6(2):110-113.

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Date of Submission: 28-04-14

Date of Acceptance: 29-05-15

Date of Publication: 30-06-15

ABSTRACT

Background: Surveys to assess the dietary intake and nutritional status of population are essential to monitor the ongoing nutrition transition and initiate appropriate intervention. Looking into the higher prevalence of problem in rural areas, additional surveys at smaller level are required for monitoring of food security.¹ Objectives of the study were to assess nutritional status of families using diet survey method and to find out determinants of food availability in families under study.

Methods: This is a community based study was done under the department of Community Medicine at Sri Aurobindo Medical College and P.G. Institute Indore, after taking approval from ethics and research committee of the institute. Two stage cluster sampling was done for the survey. A dietary survey based on 24 hour recall of food consumption in the families of a rural area was done.

Results: The mean calorie/CU in class I by (Prasad's socio-economic classification) was 1910.11 and of class IV was 1597.53 (p<0.007). The mean protein /CU was found to be 93.48, 71.49, 67.46 and 61.60 in socio-economic class I,II,III and IV respectively (p<0.001).

Conclusions: The mean calorie and protein per consumption unit in the families was found to be dependent on the socio-economic status (SES). Whereas the type of family didn't have much role with the calorie and protein intake per consumption unit.

Key words: Calorie/CU, Protein/CU, Socio-economic class, Family, consumption unit

INTRODUCTION

Surveys to assess the dietary intake and nutritional status of population are essential to monitor the ongoing nutrition transition and initiate appropriate intervention. Looking into the higher prevalence of problem in rural areas, additional surveys at smaller level are required for monitoring of food security.¹

Recognizing the need for good quality data for monitoring nutritional status, ICMR in 1972 established the National Nutrition Monitoring Bureau (NNMB) in the National Institute of Nutrition (NIN), Hyderabad. Since 1973, surveys carried out by the NNMB have been a major source of data on diet and nutritional status of the Indian population.

Surveys to assess dietary intake and nutritional status of the population are essential to monitor ongoing nutrition transition and initiate appropriate interventions. In India, routine reporting of nutritional status by the health and social welfare functionaries is suboptimal.

India has therefore invested heavily in periodic surveys to obtain data on nutrition transition. Given its size and variation it is important that at least state level data are available.

In view of the known interdistrict variations in the same state and the current emphasis on decentralized district based planning, implementation and monitoring of intervention programs, efforts are currently under way to collect and report district specific data where ever possible. ²

METHODS

This is a community based study done under the department of Community Medicine at Sri Aurobindo Medical College and P.G. Institute Indore, after taking approval from ethics and research committee of the institute. A dietary survey based on 24 hour recall of food consumption in the families of a rural area was done³.

Two stage cluster sampling was done for the survey. Nearby rural area Dharampuri was chosen with the help of lottery method in the first stage. In the second stage community of Dharampuri chosen and finally the families were chosen by systematic random sampling. Sample size was calculated by using the formula $4PQ / L^2$ where p is the prevalence of the families having less than required amount of calories per consumption units. We arrived at p to be 32% by a pilot study with 30 families is 1-p. L is the margin of error which was taken as 5%.

A prior training of 1 week was given to the survey team before data collection. Importance of conversing in local language was conveyed. Each house in the community was given an identification number. A prior visit to the area for getting

the consent from the local authority in rural panchayat was done. Verbal consent and appointment for survey was taken beforehand. Questions based on consumption of raw food items were asked in relation to how much raw food items like cereals, pulses, fruits, vegetables, oil, ghee, sugar and others were consumed in last 24 hours. A 3 day average was taken so as to adjust for avoiding any atypical food consumption like fasts and feasts ^{4,5}.

Reference of consumption units were taken as per the ICMR guidelines⁶. Utensils size for arriving at the amount of raw food item used are referred from ICMR manual of dietary guidelines for Indians⁷. After obtaining the raw food consumed and the total number of consumption units in the family, nutritive values of raw food consumed by the families in the study were computed using the food composition tables as per National Institute of Nutrition Hyderabad. The calorie per consumption unit and protein per consumption unit were calculated by dividing the total calories consumed by the total number of consumption units in the family³. For obtaining the social class P.Kumar modification of Prasad Scale was used.⁸

RESULTS

There were 108 families which were enrolled in the present study. The mean calorie/CU was 1910.11, 1959.39, 2301.27 and 1597.53 in Class I, II, III and IV of socio-economic status respectively (p=0.07). Similarly the mean protein/CU was 93.48, 71.49, 67.46 and 61.60 respectively in the four socio-economic classes respectively (p < 0.001). Also the mean calorie deficient in the four socio-economic classes was 160.24, 511.22, 585.07 and 823.25 respectively.

There were 44, 14 and 23 nuclear, Joint and 3rd generation families which showed \leq 2400 kcl while there were 13, 10 and 4 families which showed >2400 kcl respectively.

Table 1: Relation of socio-economic status with mean calorie and mean protein per consumption unit

	SES Class I (n=25)	SES Class II (n=51)	SES Class III (n=19)	SES Class IV (n=13)	P-Value
Mean calorie/CU	1910.11±561.20	1959.39±625.05	2301.27±243.52	1597.53±598.33	0.007
Mean protein/CU	93.48±22.93	67.46±18.30	71.49±13.02	61.60±25.94	<0.001
Mean calorie deficient	160.24±172.60	511.22±535.64	585.07±470.46	823.25±561.57	.0009

*ANOVA applied in table 1; *SES-Socio-economic status

Table 2-Relation of type of family with calories

	Nuclear family (n=57)	Joint family (n=24)	3rd generation family (n=27)	P-Value
<=2400	44	14	23	0.074
>2400	13	10	4	

*Chi square test applied in table 2

DISCUSSION

In the present study the mean protein per consumption unit in the four socio-economic classes was found to be highly significant ($p < 0.001$). The mean protein and calorie intake per day of the families didn't depend much on the type of family but it was directly associated with the socio-economic class to which the particular family belong to.

In a study done by Mehrotra Monika in Bareilly District found that Protein intake than the recommended amount (41g/day). The average intake by the deficient respondents was 27g/day. A majority of the respondents (96.0%) had deficient .Energy deficiency was exhibited by 54.0 per cent of rural respondents.⁹

In another study done by Sandeep Kumar Ray in 2000 in Calcutta found that average calorie intake per consumption unit (CU.) *was found to be 2271.7 Kcal. which is 94.6% of RDA for a sedentary worker as per ICMR recommendation. It was further observed that almost half (47.8%) of the studied families were deprived of the basic minimum calories requirement (2400 Kcal.) indicating more vulnerability to widespread malnutrition and infection.¹⁰

In another study done by Megha Mittal in 2013 in Gurgaon it was found that in the entire sample, the average energy intake per capita per day was found to be 1942.2 kcal, which was 21.78% below the standard requirement. The average per capita, per day protein intake was found to be 49.25 grams which was 20.56% below the standard requirement of 62 grams.¹¹

Shrivastava, Rahul (2008) found that the proportion of moderate to severe underweight was marginally higher in those from nuclear families and in those living in kucchahouses. The extent of underweight tended to increase and decrease in average monthly per capita income.⁹

In a study done by Soumyajit Maiti in 2011 in West Bengal observed that the extent of malnutrition of adolescent girls was evaluated by well-to-do Indian and NCHS median value. The results

revealed that the weights and heights of these girls were below those of standard value. As regards weight for age index, only 28.2% subjects were in the normal category and the percentage of subjects suffering from Grade I (25.7%), Grade II (30.4%), Grade III (13.7%) and Grade IV (1.9%) malnutrition was quite prevalent in present study.¹²

In a study done by Narkhede Vinod in 2011 in Nagpur found that 52.23 % were suffering from various grades of malnutrition. 32.18 % children were in grade I, 16.09 % in grade II, 3.46 % in grade III and 0.5 % in grade IV malnutrition. The mean calorie intake of children in the age group 2-3 years was 842.6 Kcal, 3-4 years was 956.12 Kcal and 4-5 years was 1096.24 Kcal respectively.¹³

In another study done by Archana Prabhat et al in 2012 in Karnataka observed that the type of payment (Daily wages and monthly payment) and diet type (vegetarians/ non vegetarians) was found to exert influence on nutritional status of women, 68.5 and 72% of DW and MP had BMI in normal range while 24% MP were overweight. Conversely, 22.5% of non-vegetarian women and 57.2% women had normal BMI against 81.8% of vegetarian women.¹⁴

It was also observed by Himashree Bhattacharya in 2013 in Assam that the prevalence of stunting was higher among early adolescents than late adolescents and those who belonged to socio-economic class IV. A statistically significant difference was observed with respect to stunting and thinness among the girls whose parents were illiterate and in those living with > 5 members.¹⁵

CONCLUSIONS

The mean calorie and protein per consumption unit in the families was found to be dependent on the socio-economic status (SES). Whereas the type of family didn't have much role with the calorie and protein intake per consumption unit.

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