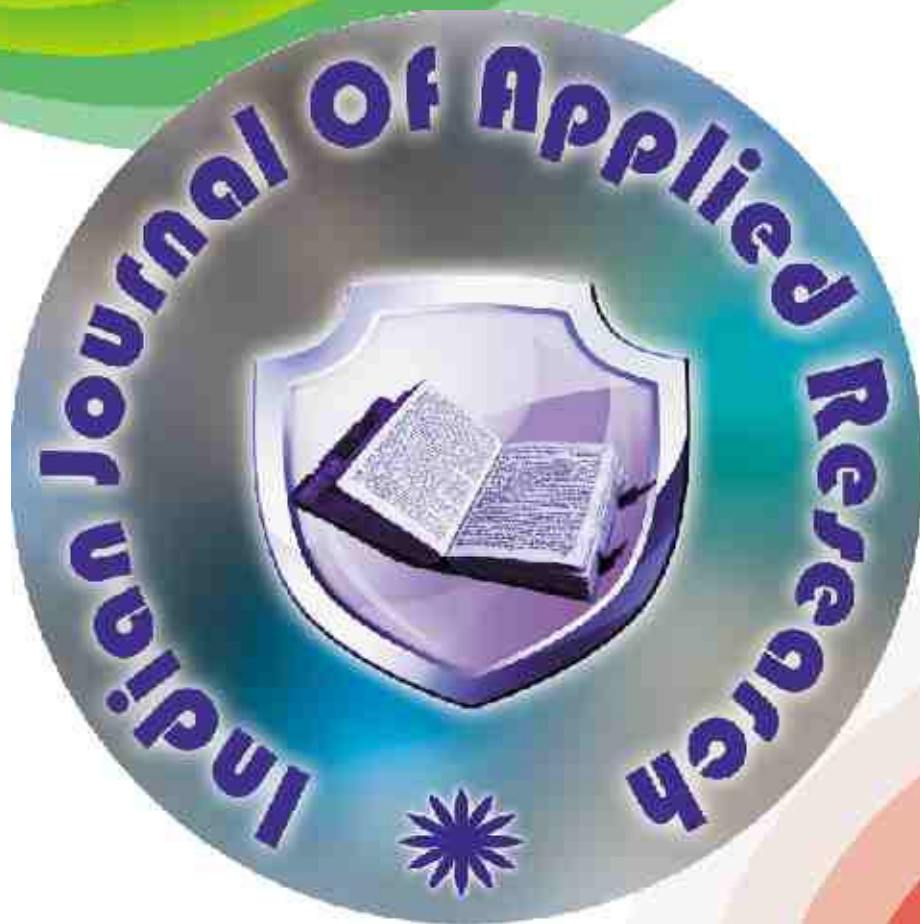


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Nutrient Adequacy Among Selected Tribal Adolescent Girls Of Kattunayakan Tribes In Tamil Nadu

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ABSTRACT

The study was carried out to assess the Socioeconomic status, dietary pattern, frequency of food consumption and nutrients intake and adequacy of 100 adolescent girls belonging to the Kattunayakan Tribal population of Nilakottai, Dindigul district, Tamil Nadu. Results of the study revealed that majority of the subjects belonged to nuclear family living below poverty line and majority of the respondent's parents were coolie. Dietary survey showed inadequacy of all major nutrients in their diet and were deficit from the recommended dietary allowance given by ICMR.

Keywords : Adolescent Girls, Tribal Population, Nutrient Adequacy, Deficiency, Health.

Introduction

Tribals have their own primitive religion and observe certain taboos in all their walks of life. The health status of the tribal's in most of the adivasi areas of our country is quite poor, primarily owing to the inaccessibility of the villages to health services and poor economic conditions (Rajagopal, 2010). Tamil Nadu has 6, 51,321 tribal populations as per 2001 census which constitutes 1.02 per cent of the total population. Studies reveal that the socio-cultural, socio-economic and environmental factors influence the food intake and health seeking behavior (Basu et al., 1990). Every now and then one hears of disease and deaths in tribal pockets due to malnutrition and communicable disease. The nutritional profile of the tribes as a whole is low when compared to national average. This is due to extreme poverty, illiteracy, ignorance infections, infestations and superstitions which are the basic problems of the tribal (Gopalan, 2006).

Adolescence is the period of transition between child hood and adult hood this reflects not only the physical and emotional changes experienced by the adolescent, but the development of dietary behavior. The nutrients requirement is more during this stage and the nutritional status during this stage of life has a strong influence on health in later years of life (Robinson et al., 1982). Hence the study was undertaken to assess the socio-economic and nutrient adequacy of the selected adolescent tribal girls belonging to the Kattunayakan Tribal population of Nilakottai, Dindigul district, Tamil Nadu.

Objectives of the Study

- To assess the socioeconomic status and dietary pattern of the selected tribal population
- To observe the food consumption frequency of selected tribal subjects
- To assess the nutrients intake and adequacy of selected tribal subjects

Materials and methods

Selection of area: The tribal adolescent girls belonging to Kattunayakan tribe from Puthupatti village, Nilakottai taluk, Dindigul district were selected for the study. One hundred

girls in the age group of 11 to 18 years were randomly selected for the subjects.

Collection of data: A specially formulated interview schedule was used to collect information regarding their socio-economic status, food habits, food frequency and meal pattern. The data was collected from the respondents using the formulated schedule.

Diet survey: The 24 hours dietary recall method was used to collect information on the dietary intake of the respondents. The nutrients content of the foods consumed by the subjects were assessed and compared with the recommended dietary allowances (RDA) given by the Indian Council for Medical Research (Gopalan et al, 2006).

Nutrient Adequacy and Nutrient Adequacy Ratio: Intake of various nutrients namely energy, protein, calcium, iron, β -carotene, and vitamin-C was calculated and compared with the recommended dietary allowances (RDA) given by ICMR (1999). Adequacy of nutrient intake was assessed by calculating nutrient adequacy ratio (NAR) for each nutrient (Jood et al., 1999).

	Nutrient Intake	
NAR Percent	=	x 100
	RDA	
Adequate		- 100 per cent and above
Marginally Adequate		- 75 per cent and above
Marginally inadequate		- 50 to 74.9 per cent
Inadequate		- Below 50 per cent

Results and Discussion

Socio-economic status of selected subjects: The socio-economic conditions of the selected respondents are presented in Table-1. Perusal of the data clearly shows that majority (90%) of the respondents belonged to nuclear family and 70 per cent of families were medium size. The percentage of under nutrition was less in adolescents belonging to extended families (40.7%) as compared to joint families (NNMB, 2000). The data collected revealed that majority (99%) of the subject's parents were coolies and only one percent of the parents was working as driver with a private company. The extent of stunting among the adolescent was significantly higher in those belonging to labourers' families (NNMB). It was also found that the monthly family income of the respondent's parents were in the range from Rs.2000 3000.

Hundred percent of the subjects were found to be living below poverty line. Higher percentage of adolescent girls whose mothers were illiterate, hailing from the families living below poverty line and following joint family system were found to be having less than the normal nutritional status (Kamble, 2003).

Table 1 : Socio- Economic Status of Selected Respondents

Status	Particulars	Number N=100	Percentage
Type of Family	Nuclear	90	90
	Joint	10	10
Size Of Family	Small (up to 4 members)	25	25
	Medium (5-7)	70	70
	Large(>7)	5	5
Occupation of parents	Agricultural	-	-
	Non – agricultural	-	-
	Private	1	1
	Government (Others) Coolie	99	99
Family Income	Below poverty line	100	100
	Low income group	-	-
	Moderate income group	-	-
	Higher income group	-	-

Dietary pattern of selected respondents: The dietary pattern covering the food habit and meal pattern of the selected respondents are presented in Table-2. It shows that 100 per cent of the respondents were non-vegetarians and consumed meals thrice a day.

Table- 2 : Dietary Pattern of Selected Respondents

Dietary Pattern	Food consumed	Number (N= 100)	Percentage
Food Habit	Vegetarian	-	-
	Non-vegetarian	100	100
	Total	100	100
Meal Pattern	Once	-	-
	Twice	-	-
	Thrice	100	100
	Total	100	100

Frequency of Food consumption of selected respondents: The frequency of the consumption of various food groups by the selected respondents are shown in Table-3. It is obvious from the table that cereals formed their staple diet. Pulses were not a daily item of tribal dietary food as it was consumed either weekly or monthly (Sinha et al., 2005). A study conducted by Rao et, al (2006) reported that the average intake of cereals and millets among tribal adolescents were lower than that consumed by rural adolescents. Twenty five, sixteen, twenty seven per cent of the subjects were found to respectively consume roots and tubers, green leafy vegetable and other vegetables daily. Intake of all the foods, except cereals and millets and roots and tubers were below the recommended daily allowance (RDA) by the respondents. Consumption of protective foods such as green leafy vegetables (GLVs), fruits and milk were also grossly inadequate (NNMB, 2000). It is also evident from the table that only four per cent of them were consuming fruits daily. Majority of the subjects (35%) revealed that they consumed coconut only as the only source of nuts. Forty eight per cent of the subjects also reported that they rarely consumed milk and its products. The table also depicts that majority (52%) of the respondents' intake of meat and meat products were only on weekly basis. All the subjects reported that they consumed oil daily and they mainly used gingelly oil. The intake of qualitative foods such as pulses, milk and milk products, oils and fats and sugar and jaggery was lower among tribal adolescents of all the age groups (Rao et al., 2006).

Nutrient intake of selected subjects: The mean nutrients intake of the selected respondents is presented in Table-4. The mean energy intake of the selected subjects was 1241Kcal, which covers only 60 per cent of RDA. The intake of protein was 42 g and was significantly deficit when compared to RDA of 65g. Major deficit was also seen in the

intake of calcium, iron, carotene and vitamin C by the selected subjects.

Table 3 : Frequency of Food Consumption of Selected Respondents

Sl. no	Food	Daily	Weekly	Rarely	Restricted
1	Cereals	100	-	-	-
2	Pulses	11	55	34	-
3	Roots and tubers	25	41	29	9
4	Green leafy vegetables	16	31	50	3
5	Other vegetables	27	49	23	1
6	Fruits	4	30	62	4
7	Nuts and oilseeds	35	29	14	22
8	Milk and milk products	7	35	48	10
9	Meat And Meat Products, Fish, egg.	13	52	34	1
10	Oil	100	-	-	-

This shows that the nutrients intake by the subject was very poor, which can lead to the deficiency diseases caused by these nutrients. Distribution of adolescents according to intake of various nutrients expressed as per cent of RDA revealed that more than 50 per cent of boys and girls had intakes of less than 70 per cent of RDA (Rao et al., 2006).

Table-4 : Mean Nutrients Intake of Selected Subjects

Nutrients	RDA	Mean Intake	Percentage of Intake in terms of RDA	Percentage of adequacy
Energy (Kcal)	2060	1241	60.2	-39.8
Protein (g)	65	42.2	64.9	-35.1
Calcium (mg)	600	260.4	43.4	-56.6
Iron (mg)	28	14.6	52.2	-47.8
β-Carotene (IU)	2400	638.4	26.6	-73.4
Vitamin C (mg)	40	33.1	82.7	-17.3

Nutrient Adequacy According to Nutrient Adequacy Ratio: The nutrient adequacy of the selected respondents is displayed in Table-5. It is clear from the table that the energy, protein and iron intake of the selected respondents were marginally inadequate. However the intake of calcium and β-carotene was inadequate and vitamin-C was marginally adequate. The intake of Vitamin-A and Vitamin C was much less than their respective recommended daily allowance (RDA). The report of first repeat survey on Diet and Nutritional Status of Tribal Population (National Nutrition Monitoring Bureau, 2000) shows that the overall dietary intake of iron had declined in all age groups (1-3, 4-6, 7-9, 10-12 and 13-15 years) as per 1998-99 surveys, when compared with 1985-87 surveys.

Table- 5 Nutrient Adequacy Ratio of Selected Respondents

Nutrients	RDA	Mean	NAR*	Category
Energy (Kcal)	2060	1241	60.24	Marginally Inadequate
Protein (g)	65	42.2	64.9	Marginally Inadequate
Calcium (mg)	600	260.4	43.4	Inadequate
Iron (mg)	28	14.6	52.14	Marginally Inadequate
β-Carotene (IU)	2400	638.4	26.6	Inadequate
Vitamin C (mg)	40	33.1	82.75	Marginally Adequate

NAR* - Nutrient adequacy ratio

Summary and Conclusion

The result of the present study revealed that majority of the selected respondents were from nuclear (90%) and medium sized (70 %) family. Cent percent of the subjects were found to be living below poverty line. Cereals formed their staple diet and pulses were not a daily item consumed in their households. The findings showed that food and nutrient intake by the respondents were very poor and deficient in all the nutrients. Thus, adolescents with poor nutritional status enter womanhood and are exposed to the risks of bad obstetric outcomes. Inadequate health care facilities, illiteracy and socio-economic status are the disadvantage seen among the selected tribal populations that perpetuate the vicious cycle of under nutrition. Therefore, there is a need to evolve comprehensive programs for the overall development of tribal populations with special focus on adolescents.

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