



RESEARCH ARTICLE

NUTRITIONAL PROFILE OF IRULAR TRIBES

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ABSTRACT

India is a home to a large number of tribes known for their varied culture and tradition. The irular tribes are the ancient tribal group living in the lower slopes of the Western Ghats Mountain spread over Coimbatore district. The present study was conducted in nine Government tribal schools situated in irular tribal areas. Before initiating the study, permission was sought from the district tribal welfare officer and the respective school headmasters. A questionnaire was developed to collect the details regarding the family size, occupation and income level, directly from the tribal adolescent girls. The screening test for finding the prevalence of anaemia was planned in all the nine schools. The information regarding the screening was passed on to all the nine schools through announcements in school assembly and put up in the school notice boards. Total number of registered tribal adolescent girls was 615. But only 523 participated in the screening programme. As a part of the screening, clinical examination was carried out for all the 523 adolescent girls for the presence of signs and symptoms of anaemia. The haemoglobin level of all the girls was estimated using Sahli's haemometer method (Pal *et. al* 2003). The results showed that all 523 adolescent girls were anaemic. Clinical examinations revealed that these girls were having signs and symptoms of anaemia.

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INTRODUCTION

Nutritional adequacy is one of the key determinants of the quality of human resources any where in the world and it plays a vital role in the maintenance of health and prevention of chronic lifestyle diseases at all stages of life cycle, especially during childhood and adolescent stage. India is a home for large number of tribal people, still untouched by the lifestyle of the modern world. With more than 84.4 million tribes in the world, India has the second largest tribal population in the world next to African countries and constitute 8.08 percent of the total population of the country. Any race in the scheduled tribes (ST) differs considerably from another race, through language, customs, culture and beliefs in myths. The groups are speaking about 106 languages and 225 subsidiary languages. Most of the tribal communities are living in the remotest corners of the state and in the hilly forest regions. In India, there are 533 tribal communities living, with the largest number of 62 tribal groups in the state of Odhisha and some of the major tribes in different states (Annual Report, 2000 – 2001). Tamil Nadu has 36 types of total Scheduled Tribe (ST) population of 0.65 million, which constitute about 1.04 percent of the total population of the state. The major primitive tribes include Kadar, Muduvan, Paaliyan, Kainkhar, Malayali, Soliga,

Konda Reddi, Toda, Kota, Kurumba, Kuttunayakan, Paniyan and Irular. Irulars as primitive tribes, found as consented population in the hills of Western Ghats (Directorate of census operations, 2003). Coimbatore district accounts for four per cent of tribal population in the state (Kurup, 2000). Irulars are one of the ancient tribes of India and they are the second largest tribal groups of Tamil Nadu. They are mainly living in the lower slopes of Western Ghats mountain which cover the states of Tamil Nadu and Kerala. The name irular is derived from the Tamil word "irul" means darkness. Dutt (2000) stated that the name could either refer to the their dark skin or to the jungles they inhabit and hunt in. The other names of irular tribes are Iruliga, Iraliga, Vanniya, Venupalli, Pujari Chenchu and Arava yenadi. Tribal girls play a significant role in domestic and socio – economic life of the society such that national development is not possible without developing this important and substantial segment of our society (Thangamani and Philachon, 2011). In the process of human development, adolescence is the most exciting yet challenging period. The term adolescent is derived from the Latin verb, "adolescents" meaning to grow into maturity. Adolescence is a significant period in a life of any individual because, the individual begins to think about one self seriously and wants to be an identity in the social group (Kalapriya and Lakshmi, 2012). Adolescents aged between 10 and 19 years account for more than 1/6th of World's population and 22 percent of Indian population, i.e., 230 million Indians are adolescents in the age group of 10 and

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19 years (Savita, 2011). Iron deficiency is the most prevalent single deficiency state worldwide. It has socio – economically important adverse consequences. Iron deficiency and iron deficiency anemia can affect learning capacity and development. Anaemia is defined as a condition where the haemoglobin concentration is less than a defined level resulting in decreased oxygen carrying capacity of blood which is a serious health problem in India affecting all segments of population. In the studies conducted in developing countries, adolescent anaemia was reported as the greatest nutritional health problem (Kaur *et al.*, 2013). The problem of anaemia in developing countries tends to be three to four times higher than in the developed countries. The prevalence was higher than 90 percent. A study conducted by Kaur *et al.* (2013) revealed a high prevalence of anaemia (91.3 percent) among the rural school going adolescent girls from a low socio – economic group of Kurukshetra district. United Nations re-emphasized that “control of anaemia should be one of the global development goals to be achieved in the early years of this new millennium (Krause *et al.*, 2004).

Objectives

- To assess the family back ground profile of irular tribal adolescent girls.
- To assess of the dietary profile, nutritional status and clinical profile of tribal adolescent girls.
- To study the prevalence of anaemia among irular tribal adolescent girls.

MATERIALS AND METHODS

Irular tribes are the ancient tribal group living in the lower slopes of Western Ghats mountain. The present study was conducted in the four irular tribal blocks of Western Ghats mountain situated in Coimbatore district. The four tribal blocks selected were, namely Karamadai, Madhukkarai, Perianayakanpalayam and Thondamuthur. Before initiating the study, permission was obtained from the District Tribal Welfare Officer, Collectorate, Coimbatore. After obtaining permission, the investigator contacted the Head Masters of these nine schools, personally explained in detail of the objectives and the outcome of the research. The investigator gave assurance that the conduct of her research will not affect or disturb the academic schedule of the schools. The information regarding screening namely the day, the date, the time and the other criteria were informed to the tribal adolescent girls through announcements in the school assembly. Apart from the announcements regarding screening, information was also put up in the school notice boards. The investigator also visited the class rooms of 6th – 10th standards, in all the schools and made the announcement regarding the screening, in person so that the investigator will have the full coverage of the tribal adolescent girls studying in these schools. Total number of registered tribal adolescent girls (13 – 16 years) in these nine schools were 615. But only 523 tribal adolescent girls were available for screening due to long absenteeism of the other 92 tribal adolescent girls to the schools. A questionnaire was developed to collect the details regarding the family size, occupation and income level, profile of parents of these adolescent girls, family expenditure pattern, details regarding eating habits, and general food consumption

pattern of these tribal adolescent girls. Nutritional status of the tribal adolescent girls was assessed through their height, weight and BMI. At the time of screening, haemoglobin levels of all the 523 tribal adolescent girls were measured using Sahli’s haemometer method. Clinical examination was also carried out for all the 523 tribal adolescent girls using ICMR clinical schedule.

RESULTS AND DISCUSSION

Family profile of the tribal adolescent girls

All the 523 tribal adolescent girls participated in the screening programme. Details regarding the family profile, socioeconomic profile of the families of these 523 tribal adolescent girls were collected using a questionnaire. The details are outlined in the following tables and figures. Age, sex, marital status, type of family, number of siblings and income are the factors that influence the socioeconomic and family back ground profiles of an individual and also play an important role on the pattern of consumption of food and nutrients.

Family profile

The details regarding the family system followed by the families of 523 tribal adolescent girls is given in the following Table I.

Table 1. Family system of the tribal adolescent girls
(N = 523)

Family system	Number	Percentage
Joint family	147	28.1
Nuclear family	376	71.9
Total	523	100

The results of the family profile of the tribal adolescent girls depicted that 71.9 percent of the families of tribal adolescent girls followed nuclear family system and 28.1 percent followed joint family system. A study conducted on adolescent girls by Vasanthamani and Lincy, (2012) revealed that, 90 percent of the adolescent girls were from nuclear family. In the present era, nuclear family system is predominantly followed irrespective of tribal or rural or urban societies.

Socio – economic status of the families of tribal adolescent girls

The details regarding the socio–economic status of the families of tribal adolescent girls is given in the following Table II.

Table II. Socio – economic status of the families of tribal adolescent girls
(N = 523)

Monthly Income *	Number	Percentage
Lower Income (< 3300)	392	75
Lower Middle Income (Rs.3301 – Rs.7300)	131	25
Middle Income (Rs.7301 – Rs.14500)	-	-
High Income (> 14500)	-	-
Total	523	100

*HUDCO (2007) – Housing and Urban Development Corporation

As per HUDCO, 2007 income classification, among the 523 families of tribal adolescent girls studied, 75 percent were in the lower income category and the remaining 25 percent were in the lower middle income category. Similar income profile

was observed among the tribes of Vizhakatpattinam district, Andhra Pradesh as quoted by Rao and Rao (2010).

Dietary profile the families of tribal adolescent girls

The details regarding the dietary profile of the families of tribal adolescent girls is given in Table III.

Table III. Type of diet consumed by tribal adolescent girls

(N = 523)		
Type of diet	Number	Percentage
Vegetarian	36	6.9
Non – vegetarian	487	93.1
Total	523	100

Among the studied tribal adolescent girls, 93.1 percent of tribal adolescent girls were non – vegetarians and 6.9 percent were vegetarians. The recorded results were similar to the results of Vasanthamani and Lincy (2012).

Methods of cooking followed in the families of tribal adolescent girls

The details regarding the methods of cooking followed in the families of tribal adolescent girls is given in Table IV. The results of methods of cooking followed in the families of tribal adolescent girls revealed that, boiling was commonly used for cooking cereals (100 percent) followed by pulses (95.2 percent). In some preparations like sundal, the pulses were boiled and shallow fat fried (93 percent). Green leafy vegetables were steamed and shallow fat fried by 69.2 percent families. Other vegetables like carrot, cabbage, brinjal etc. were boiled (23.7 percent) and shallow fat fried (49 percent). Milk was boiled and then used by all 523 tribal adolescent girls' families.

Table IV. Methods of cooking followed in the families of tribal adolescent girls

Food items	Boiling	Steaming	Steaming and shallow fat frying	Boiling and shallow fat frying
Cereals	523 (100)			
Pulses		498 (95.2)		486 (93)
Green leafy vegetables			362 (69.2)	
Other vegetables	124 (23.7)			256 (49)
Milk and milk products	523 (100)			

Note: Values in parenthesis indicates percentage.

Nutritional profile

Anthropometric measurements and Haemoglobin levels

The details regarding anthropometric measurements and haemoglobin levels of tribal adolescent girls is given in Table V.

Table V. Nutritional profile of tribal adolescent girls

(n= 523)		
Parameters	Mean	Standards *
Height (cm)	132.1	145.78
Weight (Kg)	28.1	46.7
BMI	16.12	21.37
Hemoglobin (g/dl)	8.9	12.5

* WHO – 2006

The results of anthropometric measurements revealed that the mean height and weight of tribal adolescent girls were 132.1 and 28.1 respectively which were much lesser than the standard

values of WHO, 2006. The mean haemoglobin level of all 523 tribal adolescent girls was 8.9 g/dl, which revealed that, all 523 tribal adolescent girls were anaemic.

Table VI. Symptoms of anaemia observed among the tribal adolescent girls

(N = 523)		
Symptoms	Number	Percentage
Feeling of anorexia		
Present	34	6.5
Absent	489	93.5
Presence of Headache		
Present	321	61.4
Absent	202	38.6
If yes, frequency of head ache		
Daily	-	-
Very often	53	16.5
Occasionally	268	83.5
Breathlessness on exertion		
Present	498	95.2
Absent	25	4.8
If yes,		
Moderate breathlessness	327	65.7
Severe breathlessness	171	34.3
Feeling of lethargy		
Present	468	89.5
Absent	55	10.5

The above mentioned specific symptoms related to anaemia were also observed among the tribal adolescent girls. Among the 523 tribal adolescent girls, 6.5 percent were suffering from anorexia and 83.5 percent were suffering occasionally from headache. Breathlessness on exertion was observed among 95.2 percent of tribal adolescent girls, 65.7 percent of tribal adolescent girls were suffering from moderate breathlessness and 89.5 percent of tribal adolescent girls were feeling lethargic and did not show any interest in any of the activities.

Table VII. Clinical profile of tribal adolescent girls

(N= 523)		
Variables	Number	Percentage
Eyes		
Pale conjunctiva	128	24.5
Dry on high exposure	-	-
Normal	395	75.5
Tongue colour		
Normal	136	26
Pale but not coated	387	74
Skin		
Pale	156	29.8
Slight pigmentation	64	12.2
Normal	303	58
Nails		
Flat	437	83.5
Spoon shaped	28	5.4
Brittle, ridged nails	34	6.5
Normal	24	4.6

The specific symptoms were supported by the clinical examinations carried out by the investigator. The details on clinical profile of tribal adolescent girls is given in Table VII. As per the observation of clinical examinations, 74 percent and 29.8 percent of the tribal adolescent girls had pale tongue and pale skin respectively, 83.5 percent had flat nails, 5.4 percent had spoon shaped nails and 6.5 percent had brittle and ridged nails

Summary and Conclusions

The family background profile of tribal adolescent girls revealed that 71.9 percent were living in nuclear family system. The socio – economic status of the tribal adolescent girls revealed that 75 percent were in lower income families. The family dietary pattern of tribal adolescent girls, revealed that 93.1 percent were non- vegetarians. Boiling was common method adopted for cooking by the families of tribal adolescent girls. The results of anthropometric measurements revealed that the mean height and weight of tribal adolescent girls were 132.1 and 28.1 respectively which were much lesser than the standard values of WHO, 2006. Thus nutritional profile revealed that all the 523 tribal adolescent girls were anaemic with clinical signs and symptoms for anaemia.

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