



NUTRITIONAL STATUS OF TRIBAL BOYS (10-13 YEARS) OF ANDHRA PRADESH TRIBAL WELFARE RESIDENTIAL (APTWR) SCHOOLS

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Tribal communities are isolated from general population and are socially, economically disadvantaged. In view of their habits and dietary habits, they often distinguish themselves from other population groups. Their food consumption pattern is influenced by vagaries of nature and varies from extreme deprivation in lean season to high levels of several foods during post-harvest period. Geographical isolation, primitive agriculture practices, socio cultural taboos, lack of formal education, poor infrastructural facilities, improper health seeking behaviors, poverty etc., leads to the development of various morbidities and under nutrition. The tribal population are 'at risk of 'under nutrition because of household food and nutrition insecurity.

Significance of the study

The Government of the Andhra Pradesh established schools and Junior colleges exclusively for tribal children. Andhra Pradesh Tribal Welfare Instruction Society GURUKULAM has been maintaining their institutions in residential pattern only. The boys enter into these schools in 5th Class without entry test. The government has been providing the boys free food, four pairs of clothes, bedding material, text books, note books and cosmetics for self-care along with quality education with highly qualified faculty.

Here, the children mostly depend on the food which is provided in their respective schools. They don't have the problem of junk food in their hostel menu; the problems of tribal

inmates are different with the plain area children Besides, the tribal students who are newly admitted at entry level into schools have greater requirements for more nutrients compared with those who have already joined and completed three to four years study in their respective schools. The present study was undertaken to study the nutritional behaviour of boys of tribal residential schools and effect of diet on their nutritional status and nutritional problems.

Aim

To study the nutritional status of boys of APTWR Schools (aged 10-13 Years) in Khammam district of former Andhra Pradesh.

Objectives

- ❖ To assess the Dietary nutrient intake of boys of APTWR Schools (aged 10-13 Years) Khammam District of Andhra Pradesh.
- ❖ To assess the nutritional status of boys studying in APTWR Schools.
- ❖ To assess the physical activity of the boys studying in APTWR Schools.
- ❖ To assess the nutritional behavior of the boys attending APTWR Schools.

Tribal population is at a higher risk of under nutrition because of their dependence on primitive agricultural practices and irregularity of food supply. Some of the studies showed a relationship between the tribal eco-system and their nutritional status (Rao And Rao 1994 and Tiwari, 2007).The basic problem of the tribal people is poverty and ignorance. The problem of low standard of living, hunger, starvation, malnutrition, agricultural illiteracy, disease, poor and housing facilities etc., are serious compared to the non-tribals (Vasudevachary, 2006)

Andhra Pradesh is the homeland of nearly 33 Tribal groups, accounting for 6.6 percent of the total population of the state. The Khammam district has the largest tribal population among all the districts of former Andhra Pradesh, constituting 22 percent (5.59 lacks) of total population of the state. The major tribes inhabit in the ITDA project, Bhadrachalam include mostly, Lambdas and Konda Reddy.

Nutritional problems of tribal children

The primary cause of malnutrition is inadequate diet. Apart from poverty and other socio-economic factors, environmental factors also play an important role in aggravation of the dietary deficiencies. These precipitating factors are the widespread chronic infections among the poor. Living under conditions of poor environmental sanitation and personal hygiene. Thus a marginal intake of nutrients which by itself may not lead to clinical deficiency may do so when disease is superimposed (Dolla, 2002).

Andhra Pradesh Tribal Welfare Residential Schools (APTWRS)

Providing access to educational institutions has been the first task attended to by Government. In this direction former Andhra Pradesh has set the pioneering examples when compared to the rest of the country. One major decisive step in this direction was opening 4317 Girijana Vidya Vikas Kendra's (GVVKs) in 12 districts in Andhra Pradesh, they are called Tribal Welfare Residential School.

Locale of the study

The study was conducted in Khammam District of Andhra Pradesh on tribal boys between 10 to 13 years studying in APTWR Schools of the Tribal Welfare department. 100 boys who were studying 5th, 6th, 7th and 8th classes were selected. The entry in to these APTWR Schools is 5th class these schools were maintained by Government of former Andhra Pradesh. The sample selected consisted of 50 boys studying 5th and 6th class aged between 10-11 years and were newly admitted were considered as Group-I. And Similarity 50 boys studying 7th and 8th classes aged 12 to 13 years were selected from the same four APTWR Schools formed Group-II. Thus the sample for the study comprised of 100 tribal boys studying 5th to 8th classes in APTWR Schools in Khammam District of former Andhra Pradesh.

Tools for data collection

In order to measure the variables selected and also to collect data the following tools and methods were used.

Questionnaire: A questionnaire was developed to collect information on personal profile and information related to nutrition, health and physical activity of the sample which was pretested and administered to the sample.

Anthropometric measurements: Nutritional anthropometry is measurement of human body to assess the nutritional status. It is based on the concept that an appropriate measurement should reflect and morphological variation occurring due to significant functional physiological change. The weight of the respondents was measured using a Platform type weighing scale in kilograms, in order to know the error the readings were taken thrice making it to 0 every time. The height of the boys was measured using Stadiometer in centimeters and converted in to meters. The Body Mass Index or BMI is the ratio of the Body weight in kg and the Height in meters, which was calculated using the formula; $BMI = \text{Body weight in kg} / \text{Height in m}^2$. The boys' Nutritional Status was categorized based on their BMI using the BMI age and sex specific centile values for children and adolescents (Cole, 2000)

Dietary Nutrient Intake: the dietary intake of the sample was collected using 24 hour recall method and a set of standardized vessels. The food consumed in day to today menu was collected. The cooked intake of food was converted to their raw equivalents and the nutritive value of the diet consumed by each respondent was calculated using Nutritive value of Indian foods (ICMR, 2011).

Frequency of the health problems: The respondent's frequency of health problems during a year was collected using a scale consisting of common health problems and the frequency of occurrence of each health problem was rated as; less than 5 times, 5-10 times and above 10 times in a year.

Physical activity: The boys' levels of physical activity were assessed based on their responses to the questions on – type of physical activity, duration and regularity of physical activity.

Nutritional Adequacy of diets consumed: The nutritive values of the diet consumed by each boy was compared with the corresponding Recommended Dietary Allowances in order to identify the gaps in nutrition and assess the nutritional adequacy of diets consumed.

Nutritional Behavior: The dietary information related food habits, food likes and dislikes, junk food consumption and frequency of food intake were collected from the respondents to understand the nutritional behavior of the sample.

The data was collected was pooled, tabulated , analyzed and the results were interpreted and discussed. The major findings of the study were;

- 50 percent of the inmates were admitted recently and the remaining 50 percent inmates have been staying as inmates for the last 2 to 3 years continuously.
- The educational level of the parents of the sample indicates that 79 percent of the mothers and 80percent of fathers were illiterates followed by 11percent of mothers and 15 percent fathers who had education up to Primary school level. A10 percent of mothers and 5 percent of fathers had High school education this shows that the educational status of the parents of the sample was very low.
- A notable percent (40%) of the parents were daily wage earners/ laborers and 15 percent were hunters depended on sale of birds, rabbits and other animals, a 10 percent were watchmen for Mango gardens and 30 percent depended on collection of forest produce like Fire wood, Honey, Tamarind, Roots, Tubers, Medicinal plants etc., for their livelihood.
- A 90 percent of the families belonged to low income group that is less than 10 thousand rupees per annum and living below the poverty line. Only 10 percent families had an annual income of ten thousand rupees to fifteen thousand rupees (10000 to 15000). This shows that almost all the children belonged to low and low middle income group.

Frequency of Food Intake

The frequency of food intake reveals the food selection, consumption and also likes and dislikes of the boys. Though the sample were residents of a Hostel, they may prefer or avoid some foods provided to them, the frequency of food intake also reflects their dietary diversity.

(Table – 1 about here)

The table – 1 show that the residents of APTWRS were provided cereals. pulses, vegetables, fruits, eggs and milk everyday as per the menu. The Green leafy vegetables were provided once a week. Meat foods, sea foods, root vegetables and junk foods were not provided in the hostel but the boys consumed them when they went home for vacations. Almost all the boys under study consumed all the foods provided to them.

Body Mass Index (BMI)of the sample

The height and weight of each boy was collected, BMI was calculated and compared with the BMI for age specific centile values(Cole,2000) for boys and presented in table – 9.

(Table – 2 about here)

The table – 2 shows that majority of the boys (55 Percent) were malnourished, a 35 percent of the boys were normal and only 10 percent were overweight. This shows that the nutritional status of majority of boys was poor.

A study conducted by Mitasree Mitra et al.,(2006) showed that boys and girls of Kamar tribe suffered from under nutrition in the form of under weight, stunting and wasting. This is largely due to dietary inadequacy of energy and protein intake. An urgent intervention by supplementation of key nutrients is required to ensure nutrition in these children

Dietary nutrient intake of the sample

The dietary nutrient intake of the boys under study was compared with the Recommended Dietary Allowance, to identify the gaps in nutrition and assess the adequacy of diets consumed. Based on this the sample were categorized as; below normal, Normal and above normal

(Table – 3 about here)

The table – 3 shows that majority of the sample had below normal intake of energy (70 percent), fat (9- percent), protein (70 percent),vitamin-A (70 percent), phosphorous (60 percent), calcium(60 percent), Iron (70 percent), folic acid (80 percent), fiber (80 percent). This shows that majority of the tribal boys' dietary nutrient intake was inadequate /deficient in major and minor nutrients. The tribal children are not used taking junk foods which are widely available in remote areas at lower price also.

The nutritional status among Santal-Munda children residing at rural area of Amdanga block; North 24th Parganas district, West Bengal was studied. This study found that preschool children are more likely to suffer from under nutrition than school going children. Present study provided evidence that these children were under acute and chronic nutritional stress in the form of underweight, stunting, wasting, and thinness indicating the requirement for immediate appropriate public health nutritional intervention programs (Joyeta Ghosh¹ and Rama Ranjan Pati,2015)

Frequency of health problems

The health problems of the; boys were studied to know their health status. The health problems faced by the sample during last one year was collected and presented in table – 2.

(Table – 4 about here)

The table -4 shows that majority of the boys suffered from health problems for 5 to 10 times during the last year. The health problems related to eye, constipation, Ear Nose Throat, Urinary Tract Infections and other health problems occurred less than five times during last year among majority of boys in both the groups. The treatment availed by most of the boys was other than medical treatment, though they were residents of a hostel run by Government.

Physical activity

The physical activity indicates the life style of a person and also reveals the nutritional requirement of the person. Boys who are active and participate in physical activities like games and sports need more nutrients.

(Table – 5 about here)

Around 90 percent of the inmates participate in school games and sports and have physical activity. It is known fact that physical fitness is very important for both physical and mental activity. A physically active lifestyle with abstention from smoking, moderate alcohol consumption, and consumption of healthy foods maximizes the chances of having a normal weight. The significance of avoiding sedentariness increase over time as a factor associated with normal weight

Conclusion

Right nutrition at all age's plays an important role in keeping a person fit. Choosing the right foods will help us live a healthy life and save us from the early advent life style diseases. So to develop the right food a habit in children must begin from childhood, the nutritional status and dietary habits are developed by people from their childhood based on their family environment and culture. The study allows concluding that though the diet provided is balanced in terms of foods included from various food groups; the quantity of consumption of food provided was not adequate. The frequency of health problems was also affecting the health status of the boys understudy. The BMI and dietary nutrient intake of the boys indicated that their nutritional status was below normal. And the Nutritional status of the boys studying in APTWR Schools of Khammam District was poor, the difference between the newly admitted and those who have joined 2 to 3 years was not notable.. The food habits of Tribals need to be considered while planning menu for Tribal boys to improve the acceptability of food. Tribal boys are more used to eating meat, fish and other pulses whole grains which are available in APTWR school areas and can be procured easily. In case of tribal inmates who are studying in Residential schools the food intake depends on the hostel menu, there is every need to change the menu to include foods preferred by tribal boys in the hostel menu as it gives them satisfaction and they are nutritious also.

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Table-1**Distribution of the sample according to their; frequency of food intake****n=100**

S.No.	Food Item	Frequency of food intake			
		Daily	Weekly	Monthly	Occasionally
1	Cereals	100	-	-	-
2	Millets	-	-	-	100
3	Pulses	100	-	-	-
4	Nuts and oils seeds	-	-	-	100
5	Green leafy vegetables	-	80	20	-
6	Other vegetables	100	-	-	-
7	Root vegetables	-	-	-	100
8	Fruits	100	-	-	-
9	Eggs	100	-	-	-
10	Meat, fish, poultry, sea foods	-	-	-	100
11	Milk and milk products	100	-	-	-
12	Sugar, jaggery, honey	100	-	-	-
13	Fats and oils	100	-	-	-
14	Junk food	-	-	-	100

Table – 2

Distribution of the sample according to their BMI

S.No	Age and sex specific Centile values	APTWRS boys		Description
		10-11 years G1	12-13 years G2	
1	<5 th	61	55	Malnutrition
2	5 th to 85 th	39	35	Normal
3	85 th to 95 th	-	10	Over weight
4	>95 th	-	-	Obesity
	Total	100	100	

Table –3

Dietary nutrient intake of the tribal boys

S.No	Nutrients	Dietary nutrient intake		
		Below Normal(%)	Normal (%)	Above normal (%)
1	Energy (K.Cal)	70	30	-
2	Fat(g)	90	10	-
3	Protein(g)	70	30	-
4	Carbohydrates(g)	20	80	-
5	Vitamin A(mg)	70	30	-
6	Phosphorus(mg)	60	40	-
7	Calcium (mg)	60	40	-
8	Iron (mg)	70	30	-
9	Folic acid (mg)	80	20	-
10	Fiber (g)	80	20	-

Table -4**Frequency of occurrence of health problems among Tribal boys**

S.No	Type of health problems	Frequency of occurrence of health problems (% of boys)						Treatment availed	
		<5 times (G1)	<5 times (G2)	5-10 times (G1)	5-10 times (G2)	>10 times (G1)	>10 times (G2)	Doctors	Others
		1	Cold	10	23	90	77		
2	Cough	10	23	90	77	-	-	-	100
3	Diarrhea	15	38	85	62	-	-		100
4	Constipation	70	80	30	20	-	-		100
5	Fever	22	36	78	64	-	-	20	80
6	Worm infestation	10	8	-	-	-	-	-	100
7	Dental problems	12	7	10	9	-	-	10	90
8	Skin problems	14	22	20	30	-	-	10	90
9	Eye problems	80	39	20	15	-	-	90	10
10	ENT problems	24	33	2	7	-	-	40	60
11	Urinary Tract Infections	24	36	-	-	-	-	-	100

Table – 5**Percentage of children participating in various activities**

Physical Activities	No	Percentage (%)
Play ground games and sports	90	90
Yoga	10	10
Dancing/Karate/Aerobics	0	0
Total	100	100

Table – 6

Frequency of health problems among tribal boys

S.No	Type of health problem	Frequency of occurrence in a year (percentage of sample)						Treatment availed	
		(<5times)		(%>5-10 Times)		(%>10 Times)		Doctor/Me dical officer	Others
		G1	G2	G1	G2	G1	G2		
1	Cold	10	23	90	77	-	-	-	100
2	Cough	10	23	90	77		-	-	100
3	Diarrhea	15	38	85	62		-	-	100
4	Constipation	70	80	30	20		-	-	100
5	Fever	22	36	78	64		-	20	80
6	Worm infestation	10	8	-	-		-	-	10
7	Dental problems (Carries, Tooth decay, Gum bleeding)	12	7	10	9		-	10	90
8	Skin Problems	14	22	20	30		80	10	90
9	Eye problems	80	39	20	15		-	20	80
10	Any other; Ear ache, Throat Infections, Stomach ache, Dandruff, Urinary Tract Infections	24	36	-	-		-	-	100