

Study of Nutritional Status of Korku Tribes in Betul District of Madhya Pradesh

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ABSTRACT Korku are tribal people of central India concentrated in the states of Maharashtra and Madhya Pradesh. In last few decades' research studies have showed that Korku are in grief of severe malnutrition. An estimated 5000 tribal children of this community died of malnutrition in Melghat, Maharashtra between 1992 and 1997. Even today the situation is still critical in these areas. This study is an attempt to collect all relevant information which has bearing on health and nutritional status of Korku tribes in Betul district of Madhya Pradesh. Results showed that there is a great inadequacy of nutrients among male and female Korku which is mainly due to low intake of pulses, milk and milk products, green leafy vegetables, fruits, fats and oils, and sugar and jaggery. The study suggests the need to bring about changes in food habits of Korku tribes in order to improve nutritional status.

INTRODUCTION

According to 2001 Census conducted by the government of India, India has more than 84 million tribal who constitute 8.2 % of India's population. Several research studies on various tribal populations living in different parts of India have found them to be socially and economically disadvantaged (Mittal and Srivastava 2006). Also the studies conducted by Bose and Chakraborty (2005, 2006) suggests that there is an urgent need to evaluate the nutritional status of tribes in India.

Tribes are mainly a group of people with a common ancestry, language, a shared cultural, historical tradition and identifiable territory. In India there exists a wide variety of tribes, and Korku are one of them. Korku are tribal people of Central India concentrated in the states of Maharashtra and Madhya Pradesh. According to The New Encyclopedia Britannica (1988) they number more than 285,000. Most are settled agriculturist and many have substantial farms, others shifted as recently as the late 19th century from slash and burn jungle cultivation to forestry and field labour. They speak a language of the Munda family. They regard themselves as ranking above the Gond and Bhil people, although their dietary habits are considered unacceptable by most Hindus.

Korku tribes are generally illiterate and are not aware of health and sanitary practices. For decades they have been losing their lives due to

the inadequacy in their diet. This is particularly true of the Melghat forest area in Amravati district of Maharashtra where, between 1992 and 1997, an estimated 5,000 children of this community died due to malnutrition (Info Change News & Features, October 2002). The children who died fall in UNICEF's grade 4 category of weight/age ratio, which indicates severe malnutrition (UNICEF 1997). Many of them didn't even have the strength to stand on their own. According to the authorities, the children die because the parents do not take them to a doctor. Similar condition persists in Madhya Pradesh also, only 38.8 percent Korku are literate, rest others are illiterate and unaware of health and healthy living. Therefore this study was conducted to know about nutritional status of Korku tribes in Betul district of Madhya Pradesh.

METHODOLOGY

In order to study the nutritional status of Korku tribes in Betul district of Madhya Pradesh, 10 villages of Betul district namely Padhar, Sallaiya, Moredongri, Ranipur, Baretha, Vikrampur, Khagri-dhana, Rehwadi, Bagdona, Chorepandra were selected by random sampling. Afterwards 1965 Korku tribes were selected as study samples from these villages by probability proportional to size (PPS) sampling. Among them 1062 were male Korku and 903 were female Korku. These samples were then equally divided into three groups. Group

I consisted of individuals of age group between 19 and 35 years, Group II-comprised of individuals having age group between 36 and 55years, and Group III comprised of persons ranging age group above 55years. Then a diet survey was carried out by oral questionnaire (ICMR 1991), which comprised of questions regarding choice of foods, foods avoided in certain conditions, foods included in special conditions or festivals, food fads and fallacies; also anthropometrical measurements, which included height and weight measurements of samples were taken. Then for dietary assessment, in accordance with the procedure laid down by the National Institute of Nutrition, 24 hour's food intake for three consecutive days was recorded using recall method (Cox 2005). Raw food weightment method was used for detailed study of food intake of samples. Later on, nutrient intake was compared with Recommended Dietary Allowances (RDA) values of Indian Council of Medical Research (1991) and nutritional status was assessed by using Gomez classification (Dictionary of Food and Nutrition 2005).

RESULTS

It is widely acknowledged that the dietary intake of nutrients of the majority of Indian is below the desirable level. In case of the Korku tribes also the obtained mean intake of nutrients is below the recommended dietary allowances values, which are described below (Table 2).

Calories

Calories are needed by the body for its healthy living. In case of male and female Korku, calorie intake was found lower than RDA in every age group. In group-I adequacy percentage was 78.61% for male and 81.89% for female. Adequacy % were found 73.22% and 81.8% for male and female respectively for group- II, and 73.22% adequacy % was found in male, 81.15% in female for group- III. Above results clearly indicates that calorie intake was lower than recommended dietary allowances, and comparatively females usually consume much calories than males in all the three groups. Due to this deficiency there are chances of body declining in to starvation mode.

Protein

Proteins are essential for life as they are the

basic constituents of all protoplasm and are involved in the structure of living cell and its function. Data analysis show that both the male and female Korku have low mean intake of proteins which has led to poor height and weight profile of samples, especially female Korku. For male, adequacy percentage of protein were found 77.75%, 75.22% and 67.2% for group I, II and III respectively. For the female it was 76.52% in group- I, 74.48% in group- II and 75.4% in group- III. Above results clearly indicates that though dietary protein intake was lower than Recommended dietary allowances, but comparatively males usually consume more protein than the females in all the three groups. The situation is similar to 11.5 lakh adivasis in Dhule district who depend on a single annual crop for their nutrition, in the year 1995 protein deficiency widespread in the tribal pockets of the region.

Fat

Fat intake was found comparatively quite lower than recommended dietary allowances values. In male it was found 44.1% for I group, 40.65% for II group and 39.75 % for III group. In female it was found 32.5% for I group, 35.5% for II group and 33.2 % for III group.

Carbohydrate

Carbohydrate intake was found 79.92% in male and 87.46% in female in group- I, 80.16% and 88.55% adequacy % was found in male and female respectively in group-II. In the group-III 79.2% was found in male and 87.83 % in female. Carbohydrate intake was also found comparatively quite lower than recommended dietary allowances values.

Calcium

Calcium is very much essential for keeping bones healthy. Deficiency of calcium leads softening of bones leading to deformity in bones. In male, calcium intake was higher than female. It was 47.14% in group-I. In group- II and III it was found 47.93% and 47.25% respectively. For female it was found 42.49% in group- I. In group- II and III it was found 42.89% and 42.55% respectively.

Iron

Deficiency of iron leads to anaemia. In the last

5 years more than half of the Korku tribes have died due to anemia. In this case also it is observed that prevalence of anemia is more among these tribes, about 80% of total anemic cases are due to iron deficiency in the diet. Iron content of the diet of the samples was assessed and was found inadequate. For group- I, the adequacy percentage was found 86.25% in males and 53.77% for females. In group- II, 83.61% and 50.97% adequacy were found for male and female respectively. In group- III, for male it was 74.39% and for female it was found 52.3%.

Carotene

Carotene is found in liver, kidney, egg yolk, fish, tomatoes, green yellow vegetables, fruits as mango and papaya. Carotene is required by the body for proper vision and for growth and maintenance of the integrity of epithelial tissues.

For the male, adequacy percentage was found 31.38% in group- I, 31.35% in group- II and 31.12% in group- III. For the female it was 30.93% in group- I, 31.05% in group- II and 30.97% found in group- III.

Thiamine

Diet survey revealed that the female Korku suffer from problems like muscular atrophy, weakness, dizziness and loss of appetite. These problems are due to thiamine deficiency in their diet. Data analysis show that adequacy percentage for thiamine in I group of the male was found 72.86%, for II group it was 71.14% and for III group 72.14% adequacy was found. In the female adequacy percentage were 61.81%, 62.27% and 61.82% for group I, II and III respectively.

Riboflavin

In the female the mean intake of riboflavin is found to be very low. The analysis of data show that for group- I, the male riboflavin adequacy was found 75%, 65% in group- II and 62.5% in group- III. In the female it was found 44.61% in group- I, 48.46% in group- II and 45.38% in group- III. The females in these tribes avoid milk-based diets due to poverty and many of them take their meal only once in a day time.

Table 1: Mean nutrient intake of adult male Korku

Studies	Calories (kcal)	Protein (g)	Fat (g)	Carbo- hydrate (g)	Calcium (mg)	Iron (mg)	Carotene (ig)	Thia- mine (mg)	Ribo- flavin (mg)	Niacin (mg)	Ascorbic acid (mg)
RDA*	2875	60	20	614	400	28	2400	1.4	1.6	18	40
I group*	2260	46.65	8.82	490.74	188.56	24.15	753.1	1.02	1.2	12.21	22.82
Adequacy (%)	78.61	77.75	44.1	79.92	47.14	86.25	31.38	72.86	75	67.83	57.05
II group**	2105	45.13	8.13	492.21	191.73	23.41	752.38	1	1.04	13.87	24.77
Adequacy (%)	73.22	75.22	40.65	80.16	47.93	83.61	31.35	71.14	65	77.05	61.92
III group***	2105	40.32	7.95	486.32	189.01	20.83	748.93	1.01	1	11.29	22.05

I group* = 19-35 years

II group** = 36-55 years

III group*** = above 55 years

RDA (ICMR1991)

Table 2: Mean nutrient intake of adult female Korku

Studies	Calories (kcal)	Protein (g)	Fat (g)	Carbo- hydrate (g)	Calcium (mg)	Iron (mg)	Carotene (ig)	Thia- mine (mg)	Ribo- flavin (mg)	Niacin (mg)	Ascorbic acid (mg)
RDA*	2225	50	20	461	400	30	2400	1.1	1.3	16	40
I group*	1822	38.26	6.5	403.21	169.98	16.13	742.32	0.68	0.58	9.13	16.58
Adequacy (%)	81.89	76.52	32.5	87.46	42.49	53.77	30.93	61.81	44.61	65.21	41.45
II group**	1820	37.24	7.1	408.21	170.56	15.29	745.12	0.69	0.63	9.28	17.32
Adequacy (%)	81.80	74.48	35.5	88.55	42.89	50.97	31.05	62.27	48.46	66.63	43.3
III group***	1814	37.7	6.64	404.92	170.21	15.69	743.38	0.68	0.59	9.15	16.82
Adequacy (%)	81.15	75.4	33.2	87.83	42.55	52.3	30.97	61.82	45.38	65.36	42.05

I group* = 19-35 years

II group** = 36-55 years

III group*** = above 55 years

RDA (ICMR1991)

Niacin

The Adequacy percentage of niacin for the male Korku was found to be 67.83% in group- I and 77.05% in group- II and 62.72% in group- III. For the female it was 65.21% in group- I, 66.63% in group- II and 65.36% in group- III. The obtained mean intake is low as compared to recommended dietary allowances values.

Ascorbic acid

Green leafy vegetables are mines of calcium, vitamin a, iron and ascorbic acid. It was found that only 16% of the sample consumes green leafy vegetables once in a week, 45% consumed it twice a week and 39% only occasionally. As a result adequacy percentage was found to be lower than recommended dietary allowances.

In the male 57.05% adequacy was found in group- I, 61.92% found in group- II and 55.12% was found in group- III. Adequacy % of ascorbic acid for the female was found 41.45%, 43.3% and 42.05% in group- I, II and III respectively.

DISCUSSION

An analysis of data reveals that the obtained mean nutrient intakes of both the male and female Korku are less than Recommended Dietary Allowances values. This shows that the average consumption of nutrients by the Korku is not appropriate.

The data also shows that the adequacy percentage of fat intake for both male and female Korku is very low. The main reason for this may be because Korku do not use oil in their food preparation daily, instead they consume boiled vegetables with salt and chili powder.

From table 1 and table 2 it is also clear that the adequacy percentage of calcium and carotene in case of both male and female Korku is low. This is mainly because; most of the Korku take green leafy vegetables, occasionally in their diet and consume wild roots and tubers like kolu which is quite poisonous.

The above data also reveals that the male Korku belonging to group I or age 19 to 35 years show a higher adequacy percentage for calories, protein, fat, iron, carotene, thiamine, riboflavin, than the male Korku belonging to group II and group III, whereas group II male Korku show higher adequacy percentage towards carbohy-

drate, calcium, niacin and ascorbic acid than other two groups. This shows that the male Korku having younger age group possess a good adequacy percentage towards nutrients where as those who are having age more than 55 years needs much attention.

In case of the female Korku, those belonging to group I show a higher adequacy percentage towards calories, proteins, and iron whereas group II female Korku show a higher adequacy percentage towards fat, carbohydrate, calcium, carotene, thiamine, riboflavin, and niacin in comparison to other two groups. This shows that group II female Korku belonging to age 36-55 years show better adequacy percentage towards most of the nutrients than others. Whereas female Korku belonging to group III or having age 55 years and above need much attention. Thus it is clear that with the increasing age the rate of under nutrition increases among the Korku tribes. These results are quite similar to the study conducted by Bose and Chakraborty in 2005 on adult Savar tribes of Keonjhar District, Orissa, according to which the prevalence of adult undernutrition was very high among Savar women and high among Savar men. These rates increased with increasing age. Therefore, from the public health point of view, it was concluded that immediate nutritional intervention programmes are needed for implementation among Savars, especially among older individuals.

The study also reveals that most of the Korku tribes in Betul district are illiterate, and so are unaware of food nutrition and good health. As a result of which they suffer from diseases related to food consumption. In Nandurbar district of Maharashtra also, Korku tribes are not only deprived of access to land and employment, but they are denied their right to basic education (Bunsha 2002).

One of the main reasons of illiteracy among these tribes is poverty. Due to poverty and hunger these tribes are spending their life in pain and grief, like other Korku tribes of Melaghat region. As per Info Change News and Features, October 2002, racked by ignorance and poverty, the Korku tribesmen in Melaghat region are finding life a painful experience. The death of Melghat's children, infact, is a manifestation of a deeper malaise in the Korku tribe.

CONCLUSION

India has emerged from a long period of

economic hibernation, but still malnutrition is a challenging issue, especially in tribal resident areas. Though a lot of work has been done to improve the conditions of tribes, but still they are in bad condition due to poverty, illiteracy and superstition. As Christopher Brian, who works for Child Relief and You (CRY) in Chikaldara says "Teenage mothers, large families, lack of medical care and superstition have led to deaths of children in Melaghat region". According to him, the Korku belief that childbirth will be difficult if a woman eats well during the last trimester has led to underweight babies. Besides, the pregnant women must return to work in the fields immediately after they give birth, and therefore cannot nurse their infants for long (InfoChange News and Features, October 2002). The condition is similar here. Only 10% Korku are literate and rest are unaware of basics of health and healthy living.

While study, it was found that calorie intake was lower than recommended dietary allowances. Comparatively, the female Korku consume more calories than the male Korku, which is good for females as they have to feed their children, but for males it is really not good as they perform hard labor in fields and their workplaces.

Carbohydrate intake was also lower than recommended dietary allowances among Korku. Comparatively female Korku consume more carbohydrates than male Korku.

Dietary protein, fat, calcium, iron, carotene, thiamine, riboflavin, niacin, and ascorbic acid intake was also lower than recommended dietary allowances among Korku, but comparatively male Korku consume these nutrients in more quantities than female Korku. It is mainly because Korku do not take leafy vegetables, milk eggs, in their diet. Mostly the Korku are very poor due to which they take their meals only once in a day. The condition is quite similar to Korku tribes in Maharashtra. According to the National Sample Survey Organization (1997), more than half the families in Maharashtra do not get enough to eat.

RECOMMENDATIONS

As the nutrient intake among the male and female Korku is very low than recommended dietary allowances values, it is very necessary to take immediate steps in this direction. Not only government and private institutions, but local inhabitants should also participate for preventing these tribes from the dangers of malnutrition. It is

found that only 10% Korku were aware about importance and composition of balanced diet, whereas remaining 90% were totally ignorant of this aspect. Along with higher preparation of food products, proper interfamily distribution and better selection of food items are also essential to ensure balanced diet for the members of the house holds. There are many low cost food items, which are highly nutritious and only through nutrition education, these tribes will be able to select them, to ensure balanced diet for their family. Only through imparting nutrition knowledge malnutrition can be brought under control among the tribal population particularly since protective and body building foods are in scarce supply and beyond the reach of the poor. Another reason for the high death rates in these tribal areas is superstition and their own religious traditions, due to which children and pregnant women remain deprived of medical care facilities at the time of their need. For this it is necessary to make them aware of new diseases and new treatment facilities, so that they can also live a happy and healthy life like others.

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REFERENCES

- Bender David A 2005. Gomez classification. *A Dictionary of Food and Nutrition*. 2005. Web site: <http://www.encyclopedia.com>. Accessed January 23, 2007.
- Bose, K, Chakraborty F 2005. Anthropometric characteristics and nutritional status based on body mass index of adult Bathudis: A tribal population of Keonjhar District, Orissa, India. *Asia Pac J Clin Nutr*, 14: 80-82.
- Bose K, Chakraborty F, Bonsai S, Khatun A, Bauri H 2006. Body mass index and nutritional status of adult Savar tribals of Keonjhar District, Orissa, India. *Asia Pac J Pub Health*, 18: 3-7.
- Bunsha Dionne 2002. The Excluded People. May 25-June 07 2002 Web Site: <http://www.thehindu.com/thehindu/fline/fl1911/19110460.htm>. (Accessed March 14, 2008).
- Contractor Huned 2002. *Friends of Melaghat* October 2002. Website: infochangeindia.org/index. (Accessed November 11, 2007).
- Cox H Ruby 2005. Procedures for collecting 24-hour food recall 2005. website: <http://www.csrees.usda.gov>. (Accessed March 2, 2008).

- Government of India Census 2001. Website: http://www.censusindia.net/t_00_005.html. (Accessed June 12, 2007).
- ICMR 1991a. *Individual Dietary Intake* Hyderabad: National Institute of Nutrition, ICMR.
- ICMR 1991b. *Recommended Daily Allowance for Indians*. Hyderabad: National Institute of Nutrition, ICMR.
- Mittal, PC, Srivastava, S 2006. Diet, nutritional status and food related traditions of Oraon tribes of New Mal (West Bengal), *India Rur Rem Health*, 6: 385.
- The New Encyclopedia Britannica 1988a. New York: Encyclopedia Britannica Inc., Vol XI: P. 918.
- The New Encyclopedia Britannica 1988b. New York: Encyclopedia Britannica Inc., Vol VI: P. 964.