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Nutritional status of tribal adolescent girls of Himachal Pradesh

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Abstract

The present study was undertaken with the objective to determine the nutritional status of adolescent girls belonging to *gaddi* tribe. A total of 400 girls in the age group of 10-12 year, 13-15 year and 16-18 years from Chamba and Kangra district were randomly selected. The various nutrition viz. protein, energy, calcium, iron and vitamin A (Carotene) were assessed and found that the mean nutrient intake of adolescent *gaddi* girls in all the age groups was less as compared to recommended dietary allowances.

Key words: Nutrient intake, adolescent girls, nutritional status, malnutrition, tribal girls.

Introduction

Women play a crucial role in child rearing and in the promotion of health, nutrition and socio-economic development of family and the community. It is important to identify practical ways by which the competence of women to play this pivotal role can be enhanced and sustained. This necessarily implies the identification of factors which currently limit and inhibit the physical, mental and social development of women especially of *gaddi* girls, as they have migrate from one place to another along with their herd.

Most of programs of health, nutrition and family planning are being beamed to women after they have entered motherhood and already have suffered the ravages of repeated pregnancies (Anonymous, 2000). There is very little information on the pattern of growth in adolescence and effect of socio-economic status on adolescence growth. But the most neglected subject of research in the entire field of health and nutrition, not only in India but also in developing countries is the adolescent girls (12-18 years).Yet it is precisely this group of mother to be future homemakers that will soon play most vital and determining role with respect to the physical and mental caliber of the coming generation.

Girls in the crucial age group of 11-18 years who are in need of appropriate initiation in adulthood are not concerned under only comprehensive programs at present. These girls are future homemakers. Their attainment and competence will be determining the health and nutrition of children of our next generation; it is the adolescent segment of our population. to which has been neglected in our entire developmental and educational plan. Teaneja *et al.* (1997) reported that girls were much shorter in height as compare to NCHS standards. There has been no systematic and organized attempt to prepare and enhance their skills for the challenging tasks that await them. It therefore, become necessary to look at adolescent girls in age of 11-18 years. With this rationale, the present investigation was carried out with the objective to determine the nutritional status of adolescent *gaddi* girls.

Material and Methods

The study was carried out in Kangra and Chamba district of Himachal Pradesh.

Selection of Subjects: Out of 12 districts of Himachal Pradesh two districts were selected viz., Kangra and Chamba, Since maximum *gaddi* tribes are residing in these two districts only. Ten villages from each district and two hundred girls in the age group of 12-18 years have been selected from each district thus making the total sample size of 400 adolescent girls. Girls from mobile tribes, small/ marginal and upper socio-economic class have been drawn through random sampling technique. Ten villages from each districts were selected where the density of population of *gaddi* tribes was higher.

Tool: The data was collected with the help of interview schedule and personal observation.

Nutrient Intake: Mean daily nutrient intake was computed using tables as suggested by Gopalan et al. 1995 with respect to protein, iron, energy, calcium and vitamin A. The calculated values of food and nutrient intake were compared with the recommended dietary allowances in order to observe the extent of deviation in nutrient intake as well as imbalance in food group consumption.

After the collection of data, the gathered information was tabulated and frequencies percentages and chi- square was used for interpretation of data.

Results and Discussion

Data on the nutrient intake by adolescent girls is given in Table1. The consumption of nutrients by adolescent girls in the age group of 10-12 years was compared with ICMR standards.

Daily average intake of protein, energy, calcium, iron and vitamin A (carotene) viz., 54 g/d, 1681 kcal/d, 412 mg/d, 18 mg/d and 1511 I.U. respectively which were less than the required amount as suggested by recommended dietary allowances. From the table it was concluded that daily nutrient intake of girls in the age group of 10-12 years was deficient in all the nutrients, this was due to inadequate intake of dietary sources of nutrients. The chi-square a values when tested indicated that there was significant difference between RDA and nutrient intake by girls.

Average daily intake of protein (i.e. pluses, beans, meat, fish), energy, calcium (milk and milk products), iron (amaranth, jaggery, spinach), vitamin A (carotene) was 49g/d, 1675 kcal/d, 362 mg/d, 24 g/d, 1693 I.U. which was against 65 g/d, 2060 kcal/d, 600 mg/d, 28 mg/d and 2400 I.U. were lower than the recommended dietary allowance in the age group of 13-15 years (Table 2).

Table 1. Daily Nutrient Intake by Adolescent *giddi* girls (10-12 years)

Nutrient	Recommended dietary allowances	Nutrient intake by *gaddi* girls
Protein (g/d)	57	54 ± 3.33
Energy (Kcal/d)	1970	1682 ± 181
Calcium (mg/d)	600	412 ± 38
Iron (mg/d)	19	18 ± 3.98
Vitamin A (carotene) I.U.	2400	1511 ± 100.34

χ^2 cal = 42.69 significant at 5% level

Table 2. Daily Nutrient intake by Adolescent *gaddi* girls (13-15 years)

Nutrient	Recommended dietary allowances	Nutrient intake by *gaddi* girls
Protein (g/d)	65	49 ± 5.04
Energy (Kcal/d)	2060	1675 ± 139.52
Calcium (mg/d)	600	362 ± 56
Iron (mg/d)	28	24 ± 2.69
Vitamin A (carotene) I.U.	2400	1693 ± 376.33

χ^2 cal = 20.07 significant at 5% level

This was due to poor and inadequate intake of food groups which provides these nutrients. Girls were not getting adequate diet at their home, this was due to their migratory habits of this tribe. Magyla and Jaya (1997) reported that there were cases of severe malnutrition among children of 7-14 years. Chi-square value indicate the significant difference between RDA and nutrition intake by girls.

The table 3 depicts the data regarding daily dietary nutrient intake of adolescent *gaddi* girls in the age group 16-18 years viz., protein, energy, calcium, iron , vitamin A as per fulfillment of ICMR recommended dietary allowances. As data indicate, the average daily intake of protein by *gaddi* girls of age 16-18 years was 50 gm/d, which is less as compared to RDA for the group i.e. 63 gm/d. The figures in the data indicate that the average daily intake of energy was 1589 kcal/d and calcum was 415gm/d which was less than the RDA for the group i.e. 2060 kcal/d and 500 mg/d, respectively. Manjula *et al.* 1995 reported that the mean intake of nutrient except fat, calcum, vitamin C daily average intake of iron was 22 mg/d and for age groups of 13-18 years were less than RDA. Vitamin A was 1812 I.U. which was also less as compared to recommended dietary allowance i.e. 30mg/d and 2400 I.U., respectively. The nutrient intake of this age group was much less, this was due to lack of awareness, knowledge, resources and inadequate intake of food group.

The table 4 represents the nutrient intake of *gaddi* girls in Kangra and Chamba districts of Himachal Pradesh. The daily mean intake of protein by adolescent *gaddi* girls in Kangra and Chamba districts was 51.04 ± 3.61 gm/d and 46.45 ± 3.29 gm/d, respectively, which was lower than RDA. Daily mean intake of calcium of girls of district Kangra was 482.83 ± 2.41 mg/d and 364.18 ± 2.25 mg/d respectively, which was comparatively less than the RDA. The difference was found to be significant, as the respondents of Kangra district, consumed more calcium rich food like milk and milks products. The mean intake of vitamin A in the form of carotene among *gaddi* girls of districts Kangra was 5494.33 ± 4.44 I.U. that was more than the recommended dietary allowance. Whereas the mean daily consumption of vitamin A by *gaddi* girls of Chamba district was

Table 3. Daily Nutrient intake by Adolescent *gaddi* girls (16-18 years)

Nutrient	Recommended dietary allowances	Nutrient intake by *gaddi* girls
Protein (g/d)	63	50 ± 7.03
Energy (Kcal/d)	2060	1589 ± 174.55
Calcium (mg/d)	500	415 ± 61.52
Iron (mg/d)	30	22 ± 3.94
Vitamin A (carotene) I.U.	2400	1812 ± 396.63

χ^2 cal = 1.75 Non significant

Table 4. Nutrient intake by Adolescent *gaddi* girls

Nutrients	Kangra district	Chamba district	t value
VitaminA (carotene) (I.U.)	5494 ± 4.44	2095 ± 3.48	0.96
Protein (g)	51 ± 3.65	46 ± 3.29	2.80
Calcium (mg)	483 ± 2.41	365 ± 2.25	4.95*
Iron (mg)	22 ± 1.55	27 ± 1.91	0.77

Values are mean ± standard Deviation, * significant at 5% level

2095.27 ± 3.48 I.U. which was less as compared to RDA. Mean intake of iron by adolescent girls of district Kangra was 21.91 ± 1.91 mg/d among Chamba district girls that was comparatively lower then the RDA.

Conclusion

The daily nutrient intake by adolescent *gaddi* girls in the age groups of 11-13 years, 13-15 years and 16-17 years was less as compared to recommended Dietary allowances and girls were found to be deficient in protein, energy, calcium, vitamin A and iron than recommended in that age group. Another contrary factors to this was lack of awareness, knowledge and resources. Therefore, nutrition education should become part and parcel of all the developmental programme meant for women and children. There is need to include nutrient ion education and advice as on active component of the existing programme so that the drift into growth faltering and malnutrition can be prevented.

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