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NUTRITIONAL PROFILE OF TRIBAL ELDERLY IN JHARKHAND

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ABSTRACT

The present study was conducted to assess the nutritional profile of tribal elderly in Ranchi district of Jharkhand covering two blocks and six villages. A total number of 65 each of elderly men and women belonging to the age group of 60 – 65 years were selected purposively for the study. The study revealed that tribal elderly were subsisting on inadequate diet, which was reflected in the poor intake of all the nutrients and higher prevalence of undernutrition. Except cereal, mean intake of all foods in both men and women were found below the recommended amount. Mean body mass index of elderly men and women found to be 18.97 and 18.57, respectively. The study further indicated that prevalence of chronic energy deficiency was higher in females (62%) as compared to their male counterparts (56%). To improve the nutritional status of elderly person, dissemination of low cost sustainable agriculture technologies along with nutrition education need to be given importance.

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INTRODUCTION

Jharkhand although very rich in minerals and natural resources is one of the poor states in the country in terms of human development. It is a home land of 30 tribes including eight primitive tribes, who constitutes 28% of the tribal population. Majority of tribal population of Jharkhand lives in forest ecosystem and has its own socio – cultural pattern, traditions and typical food practices. The tribes happened to be primarily rural and their economy is predominantly agriculture based on natural seasons. Settled agriculture does not provide them sufficient food due to indifferent land situation, as most of them are farmers belonging to deficient category.

The elderly are one of the most vulnerable and high risk groups in terms of health status in any society. Good nutrition is important at every stage of life for maintaining good health and personal productivity and it is especially important to the elderly because of the physiological changes that occur in the body as people age. Nutrition is an important determination of health in persons over the age of 60 years (Reddy *et al.* 2014). In addition, studies have shown that elderly people who are underweight are at higher risk of acute illness and death (Scidell, 1996). Malnutrition in the elderly is often under diagnosed and neglected. Careful nutritional assessment is necessary for both the successful diagnosis and development of comprehensive treatment plans for malnutrition in this

population. Moreover information on the nutritional status of elderly is scanty particularly with respect to tribal belt of Jharkhand. Keeping this in view, a study was conducted in Ranchi district to assess the nutritional profile of tribal elderly men & women.

MATERIALS AND METHODS

Selection of the study area

The study was conducted in the Ranchi district of Jharkhand and two tribal dominated blocks were selected randomly. List of tribal dominated villages were procured from block development officer and six tribal dominated villages from each block were selected randomly.

Selection of sample

A total of 65 each of elderly men & women belonging to the age group of 60 – 65 years were selected purposively for the study.

Collection of data

Data were collected with the help of participatory rural appraisal and interview schedule.

Diet survey

Diet survey was conducted during the month of May to August. The information on dietary intake was collected by 24 hour

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recall method followed by one day weightment method. Standard measures including catories, spoons and glasses of standard sizes were shown to the respondents to help the respondents in estimating the amounts of food consumed. Calculations were done to get the values for raw ingredients consumed by them the nutrient intake was calculated with the help of Indian Council of Medical Research bulletin. The diet and nutrient intake was compared with recommended dietary intake (RDI) (NIN, 1998) and recommended dietary allowance (ICMR, 1989), respectively.

RESULTS AND DISCUSSION

Dietary Intake: The mean food intake of elderly men and women are presented in Table 1 and 2 respectively. Diet of both groups was predominantly cereal based. On an average, elderly men and women consumed 601 g and 482 g cereal, respectively which was significantly higher than the recommended dietary intake (NIN 1998).

Table 1 Mean Food Intake of elderly tribal men

Food	Observed intake (g/day)	RDI (g/day)	Percent of RDI	P ¹
Cereal	584.52 ± 97.47	420	139	P 0.01
Pulse	10.07 ± 13.57	60	17	P 0.01
GLV	55.20 ± 52.80	100	55	P 0.01
Roots & tubers	97.24 ± 65.10	200	49	P 0.01
Other vegetable	87.42 ± 67.10	100	87	P 0.01
Fat & oil	7.50 ± 4.21	20	37	P 0.01
Meat/Fish/Egg	4.65 ± 10.16	30	15	P 0.01

Values are Mean ± SD

RDI = Recommended dietary intake of NIN, 1998

P¹ = Level of significance of 'Z' test for comparison of intake with RDI.

Table 2 Mean food intake of elderly tribal women

Food	Observed Intake(g/day)	RDI(g/day)	Percent of RDI	P ¹
Cereal	438.81 ± 78.27	300	146	P 0.01
Pulse	6.42 ± 16.51	60	90	P 0.01
Green leafy vegetable	44.23 ± 41.23	100	44	P 0.01
Root & Tuber	84.97 ± 60.83	100	85	P 0.01
Other vegetable	77.22 ± 63.93	100	77	P 0.01
Fats & oil	6.24 ± 4.42	20	31	P 0.01
Meat/fish/egg	7.41 ± 13.07	30	25	P 0.01

Values are Mean ± SD

NS = Non significant

RDI = Recommended dietary intake of NIN, 1998

P¹ = Level of significance of 'Z' test for comparison of intake with RDI.

Intake of pulse by both sex was significantly lower i.e. 83 and 73 percent of the RDI, respectively. Mean consumption of green leafy vegetables and roots & tubers were found significantly lower than the RDI among both men and women. Daily mean intake of other vegetables in men was found similar to RDI whereas 23 percent deficit was found in the diet of women. Similarly consumption of fat and flesh food were also found significantly far below the RDI in both groups. The findings of this study was in accordance with earlier study that found mean consumption of all foods were below the recommended dietary intake in both men and women (Arlappa et al.2005).

Nutrient intake

The mean intake of nutrient by elderly men and women are presented in Table 3 and 4, respectively. The mean daily intake of energy among elderly men and women were 2312Kcal and

2225 kcal, respectively which were comparable to RDA (Table 4&5). Significantly lower protein intake was observed among both elderly men and women.. Gross deficit was also noted in fat, calcium, iron and – carotene intake by both elderly men and women. Similarly lower mean intake of all the nutrients in elderly men and women has been reported by Arlappa et al (2005).

Table 3 Mean nutrient intake of elderly tribal men

Nutrient	Observed Intake	RDA	Percent of RDA	P ¹
Energy(Kcal)	2212.68 ± 326.06	2400	92	NS
Protein (g)	49.50 ± 10.67	50	82	P 0.01
Calcium(mg)	241.63 ± 142.73	400	56	P 0.01
Iron(mg)	11.06 ± 6.18	28	39	P 0.01
Fat	10.68 ± 4.11	20	53	P 0.01
-carotene(µg)	1138.28 ± 500.42	2400	47	P 0.01

Values are mean ± SD

RDA = Recommended Dietary Allowances of ICMR (1989)

P¹= Level of significance of 'z' test for comparison of intake with RDA.

Table 4 Mean nutrient intake of elderly tribal women

Nutrient	Observed Intake	RDA	Percentage Of RDA	P ¹
Energy (Kcal)	1703 ± 300.0	1900	89.6	NS
Protein (g)	40.96 ± 7.86	50	82	P 0.01
Calcium(mg)	224.48 ± 152.49	400	56	P 0.01
Iron (mg)	8.74 ± 2.92	30	29	P 0.01
Fat(g)	10.37 ± 4.01	20	52	P 0.01
- carotene(µg)	1113.24 ± 602.51	2400	46	P 0.01

Values are Mean ± SD

RDA = Recommended Dietary Allowances of ICMR (1989)

P¹= Level of significance of 'z' test for comparison of intake with RDA.

Table 5 Percentage distribution of elderly tribal men and women according to nutrient intake

Nutrient	Men(n=65)		Women(n=65)	
	Secure	Insecure	Secure	Insecure
Protein	5 (8)	60 (92)	11 (17)	54 (83)
	1 (1.5)	64 (98.5)	-	63 (100)
Fat	11 (17)	54 (83)	10 (15)	85 (85)
	2 (3)	63 (97)	-	65 (100)
Calcium	9 (14)	56 (86)	14 (21)	51 (79)
	2 (3)	63 (97)	2 (3)	63 (97)
Iron	2 (3)	63 (97)	2 (3)	63 (97)
	2 (3)	63 (97)	2 (3)	63 (97)
Energy	2 (3)	63 (97)	2 (3)	63 (97)
	2 (3)	63 (97)	2 (3)	63 (97)
- carotene	2 (3)	63 (97)	2 (3)	63 (97)
	2 (3)	63 (97)	2 (3)	63 (97)

Frequency distribution of elderly men and women according to nutrient intake is presented in table 5. It is evident that only 8 and 17 percent men and women were found secured in terms of protein where as with regard to energy intake only 14 and 21 percent men and women were found secured. Cent percent elderly women were found insecure in terms of fat and iron, while only 1 and 3 percent men were found secured with regard to fat and iron respectively. Similarly majority of elderly men and women were found insecure in terms of calcium and – carotene.

Anthropometric profile

Anthropometric profiles of elderly men and women are given in Table 6. The mean height of elderly men and women was 161.17 cm and 150.23 cm, respectively. However, lower mean height in both elderly men and women were reported by earlier works (Purty et al, 2006 and Reddy et al, 2014). Mean weight

of elderly men (49.80kg) was significantly higher than elderly women (41.80). The results of the present study are corroborated by earlier study (Bose *et al.* 2006) which states that the average weight of men and women aged 60 years and above was 49.5 ± 8.79 kg and 42.2 ± 3.1 kg, respectively. Further Purty *et al.* (2006) reported that the average weight of elderly men and women was 49.4 kg and 42.2 kg, respectively in Tamil Nadu which is similar to the present study. Mean MAC was found significantly higher in men than in women whereas triceps skin fold measurement was found significantly higher in elderly women than in elderly men. Mean body mass index (BMI) of elderly men and women were found to be 18.95 to 18.57, respectively, which is lower compared to earlier work (Purti *et al.*, 2014).

Table no. 6 Anthropometric measurement of elderly tribal men and women

Anthropometric Measurement	Observed value		P ¹
	Men	Women	
Height(cm)	161.17 ± 7.34	150.23 ± 5.17	P 0.01
Weight (kg)	49.89 ± 7.84	41.89 ± 6.58	P 0.01
Mid – arm – Circumference(cm)	23.98 ± 2.21	22.40 ± 2.28	P 0.01
BMI	18.95 ± 2.16	18.57 ± 2.31	P 0.01
Triceps measurements (mm)	5.06 ± 1.83	8.16 ± 3.56	P 0.01

Values are mean ± SD

NS = Non Significant

P¹ = Level of significance for comparison of measurements between elderly men and women

Table 7 Percentage distributions of elderly men and women according to body mass index.

BMI	Men (n=65)	Women (n=65)
20 – 25(normal)	11 (17)	8 (12)
18.5 – 20 (low weight normal)	18 (27)	17 (26)
17 – 18.5(grade I)	22 (34)	24 (37)
16 – 17 (grade – II)	7 (11)	9 (14)
< 16(grade III)	7 (11)	7 (11)

Frequency distribution of elderly men and women according to the body mass index is presented in table no 7. As it is evident that majority of men (56%) and women (962%) had BMI less than 18.5 i.e. they came under the category of under nourished. Out of 56 percent of adult men, 34 percent suffered from Grade I, 11 percent each from Grade II and Grade III type of chronic energy deficiency. With reference to women, 37 percent fell under the category of grade I, 14 percent in grade II and 11 percent in grade III type of undernutrition.

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About 27 and 26 percent of men and women were found low weight. Only 17 percent men and 12 percent women had BMI between 20 – 25 and classified as normal.

CONCLUSION

Hence it may be concluded that dietary and nutrient intakes of tribal elderly men and women were inadequate. Except cereal, the intakes of other foods were far below the recommended amount. The percent adequacy of green leafy vegetables, roots and tubers and other vegetables among elderly men and women were 55, 49, 87 and 44, 85, and 77 percent, respectively. For rest of the food stuffs, the percent adequacy was found to be between 10 – 37 percent. Gap between mean intake of all nutrients particularly micronutrients were far below the RDA. The prevalence of chronic energy deficiency (BMI<18.5) was relatively higher in (62%) in females as compared with their male counterparts (56%).

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