ISSN No-2031-5063 Vol.1,Issue.I/July 11pp.1-4

Research Paper -Home Science

DIETARY INTAKE OF INSTITUTIONALIZED ELDERLY WOMEN

Dr R.P. Lalita Reddy
Assistant Professor,
Department of Food and Nutrition
Smt. V H D Central institute of home science,
Sheshadri Road Bangalore: 560001

By Afeefa syeda
PhD Research scholar
Department of Food and Nutrition
Smt. V H D Central institute of home science,
Sheshadri Road Bangalore: 560001

ABSTRACT

Ageing is complex phenomenon that is accompanied by physiological, psychological and social changes contributing to decline in health status. Nearly 12% of India's ageing population has been officially declared as "destitute" and they are forced to survive on meager pensions or sent to an old age homes by their own kith and kin. Aim: To study the Dietary Intake of institutionalized elderly women. Method: The present study was conducted in 2 different old age homes for women. The total subjects n=111. Group I non-vegetarian group consisted of 72 females (Mean age 71.25± SD12.95). Group II vegetarian consisted of 39 Females (Mean age 66.95±SD13.95). Dietary intakes of 111 elderly women were assessed by combination of food inventory and the weighment method. The nutrient intake of the inmates was calculated and compared with RDA. RDA for all the subjects was calculated on individual basis using Harris-Benedict formula. Result: Indicted that the energy and fat intake is on par with RDA and Protein intake was low in vegetarian group. In case of Non-vegetarian group the mean caloric intake, carbohydrate and fat intake is more than the RDA. The protein intake of this group is on par with RDA unlike the vegetarian group. Pertaining to the micro-nutrients intake, Iron and fiber is less than the RDA in both vegetarian and Non vegetarian group increasing their risk to become anemic. This finding stresses the need for dietary intervention or medical supplements based on their need to increase the iron and fiber intake of these institutionalized elderly women.

KEY WORDS: Dietary intakes, Institutionalized, Macro-nutrients, Micro-nutrients, RDA.

INTRODUCTION

According to the 2001 Census, there were 496.4 million women in India, out of India's total population of 1028 million. A change of traditional joint family system to nuclear family has given rise to concept of institution like old age home. Elderly people are sometimes left alone to fend for themselves to maintain their health. In these situation old age homes becomes a backbone for the elderly where they can live for rest of their lives.

Inadequate dietary intake in the elderly has dire consequences on their health. The decline in health status of elderly leads to a loss of independence and an increased need for care. Sound nutritional status is a prerequisite for good health and better quality of life. In near future senior citizens of our country are likely to outnumber the population of children. It is hence necessary to improve the health of elderly not only to increase life expectancy but also to improve the quality of life (Sreeramulu D and Raghuramulu N, 1999).

Elderly suffer from multiple health problems apart from risk of poor nutrition due to economic pressures, poor dentitions, reduced mobility, depression, loneliness, ageing tissues and inadequate food consumption (Srilakshmi, B, 2006). Dietary intake is an important factor contributing to aging. Aging is accompanied by physiological, social and psychological changes. These in turn have an impact on their dietary intake which affects their nutritional status.

Owing to their economic dependency, social deprivation and change in the behavior towards diet and health care, they become vulnerable to ill health. Hence studying dietary intake of the old age forms one of the important pre-requisites or developing appropriate strategies and programmes for elderly (Bharamam, G.N.V.1999).

SAMPLING

Two private old age homes were included in the study. Holy family home for the aged with (72 inmates) Ashraya seva trust with (39 inmates). About 111 women were included in this study from both the old age homes. The study subjects were under age groups starting from 50-95yrs respectively.

Both the institutions consisted of a centralized kitchen. Meals were prepared by a trained staff. The Holy family home for the aged provided non-vegetarian food item such as chicken, fish and egg thrice a week. In contrast the Ashraya seva trust provided only vegetarian meals.

METHODOLOGY

An Interview schedule was developed and tested on 10% of the sample and suitable changes are made based on the observations. Dietary intake was assessed for a period of seven days in old age homes. Food inventory method was employed where the amount of foodstuffs issued to centralized kitchen was weighed directly as well as total amount of cooked food was weighed using standard weighing scale on daily basis (Mahatab et al., 1998, Bhaskaracharya,et al., 2008 and Ankalmadagu Venkatasubbareddy Bharathi., 2008).

A digital weighing scale was used to measure each cooked meal before the individual consumption and the wastage was measured at end of the meal. The average dietary intake was calculated based on their dietary intake or 7 days. Intake of extra food items consumed by inmates during this period was taken into account for the calculation of their dietary intake.

Nutritive value of the diet was calculated using the food composition table (Gopalan et al., 1991 and Gopalan et al., 1999). The nutrient intake of the subjects was compared with the RDA. The calorie requirement was computed for all the subjects on individual basis using Harris-Benedict equations, Physical activity and thermic effect of food (TEF). As the total energy needs decreases with ageing 5% of reduction in energy allowances per decade was taken into consideration while calculating the energy requirement. (Whitney and Sharon., Sue Rodgers and Williams, FAO 1950). Medical Research (1990).

STATISTICAL METHODS

Descriptive statistical analysis has been carried out in the present study. Results on continuous measurements are presented on Mean SD (Min-Max) and results on categorical measurements are presented in Number (%).

Significance is assessed at 5 % level of significance. The following assumptions on data is made, Assumptions: 1.Dependent variables should be normally distributed, 2.Samples drawn from the population should be random, Cases of the samples should be independent

Student t test (two tailed, independent) has been used to find the significance of study parameters on continuous scale between two groups Inter group analysis) on metric parameters, and Student t test (two tailed, dependent) has been used to find the significance of study parameters on continuous scale with in each group. Chi-square/ Fisher Exact test has been used to find the significance of study parameters on categorical scale between two or more groups.

Statistical software: The Statistical software namely SAS 9.2, SPSS 15.0, Stata 10.1, MedCalc 9.0.1 ,Systat 12.0 and R environment ver.2.11.1 were used for the analysis of the data and Microsoft word and Excel have been used to generate graphs, tables etc.

RESULTS AND DISCUSSION

Table 1: Comparison of mean dietary intake in Non- vegetarian group I and vegetarian group II

Total Dietary Intake	Non-vegetarian	vegetarian	P value
Energy Kcals/day	1690.50±173.48	1457.85±242.41	<0.001**
CHO gms/day	280.13±31.52	221.90±28.17	<0.001**
Protein gms/day	53.99±3.90	48.44±7.40	<0.001**
FAT gms/day	38.92±4.73	31.95±4.99	<0.001**
Fiber gms/day	26.30±1.59	23.41±1.31	<0.001**
Calcium mg/day	643.96±0.49	841.00±0.00	<0.001**
Iron mg/day	13.00±0.00	12.00±0.00	-
Vitamin C mg/day	43.04±0.31	60.00±0.00	<0.001**
Thiamin mg/day	9.50±0.79	0.90±0.00	<0.001**
Riboflavin mg/day	0.80±0.00	1.00±0.00	<0.001**

** Strong statically significance * moderately significant + suggestive significance

Total dietary intake in above table depicts that there is statistical association observed between both vegetarian and non vegetarian group with respect to intake of energy, carbohydrates, protein, fat, fiber calcium iron and vitamin c. The mean total caloric intake, carbohydrates, fat intake is more than RDA in non-vegetarian group as against vegetarian group where the intake of calories and fat is on par with RDA. The mean intake of fiber and iron is lower than RDA in both the groups whereas, the mean intake of calcium and vitamin c is more than RDA.

Table 2: Mean dietary Intake and comparison with recommended dietary allowances in Group I (Non-Vegetarian)

Dietary Intake	Mean	SD	RDA	P value
Energy Kcals/day	1690.50	173.48	1408.7	<0.001**
CHO gms/day	280.13	31.52	228.9	<0.001**
Protein gms/day	53.99	3.90	52.8	0.125
FAT gms/day	38.92	4.73	31.3	<0.001**
Fiber gms/day	26.30	1.59	30.0	<0.001**
Calcium mg/day	643.96	0.49	600.0	<0.001**
Iron mg/day	13.00	0.00	21.0	<0.001**
Vitamin C mg/day	43.04	0.31	40.0	<0.001**
Thiamin mg/day	0.8	0.00	0.9	1.000
Riboflavin mg/day	1.0	0.00	1.1	1.000

The mean Nutrient intake of Non–vegetarian group is depicted in table1. It is found that the mean Calories, Carbohydrate and fat intake is more than the RDA and the difference was found to be statistically significant. Protein intake of (53.9gm/day) was found to be adequate when compared with RDA of (52.8gm/day). It is also observed that the intake of dietary fiber is lower (±26.3 - 1.5) in comparison with RDA of 30gm/day. The fiber content of the diet in old age plays an important role since constipation is one of the common problem faced in old age. Pertaining to Micro-nutrients except Iron intake is (13mg/day) which is significantly less than RDA of (21mg/day). All the other mentioned nutrients statistically meet the RDA. All the other nutrients listed in the table are on par with RDA.

Table 3: Mean dietary Intake and comparison with recommended dietary allowances in Group II (Vegetarian).

Dietary Intake	Mean	SD	RDA	P value
Energy Kcals/day	1457.8	242.4	1455.5	0.952
CHO gms/day	221.9	28.2	236.6	0.002**
Protein gms/day	48.4	7.4	54.7	<0.001**
FAT gms/day	31.9	5.0	32.3	0.663
Fiber gms/day	23.4	1.3	30.0	<0.001**
Calcium mg/day	841.0	0.0	600.0	<0.001**
Iron mg/day	12.0	0.0	21.0	<0.001**
Vitamin C mg/day	60.0	0.0	40.0	<0.001**
Thiamin mg/day	0.9	0.0	0.9	1.000
Riboflavin mg/day	1.0	0.0	1.1	1.000

The mean Nutrient intake of Vegetarian group is depicted in table II. It is found that the mean Calories and fat intake is on power with RDA. Protein intake (± 48.4 - 7.4) was low compared with RDA of (54.7gm/day). The difference was found to be statistically significant. It is also observed that the intake of dietary fiber is lower (±23.4 - 1.3) in comparison with RDA of 30gm/day. The fiber content of the diet in old age plays an important role since constipation is one of the common problem faced in old age. Pertaining to micro-nutrient except Iron (12 mg/day) which is significantly less than RDA (21mg/day). All the other nutrients listed in the table are on par the RDA.

Figure1: Mean intake of energy Kcal (Macro-nutri

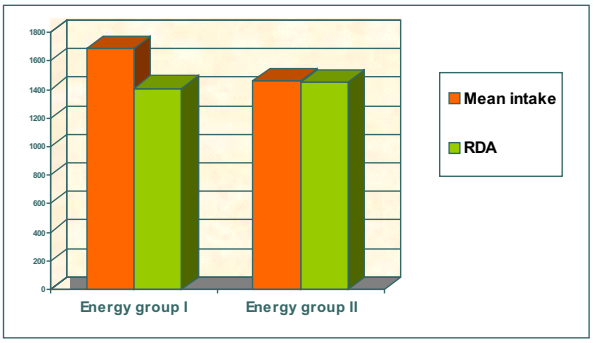


Figure2: Mean intake of protein of the subjects in comparison with RDA

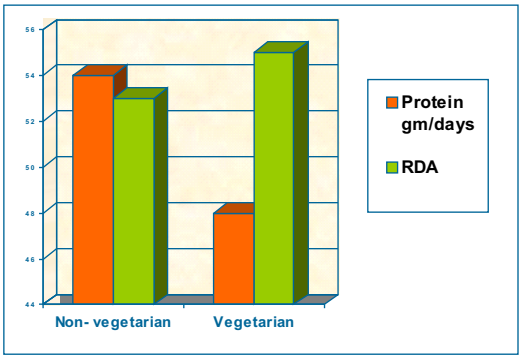
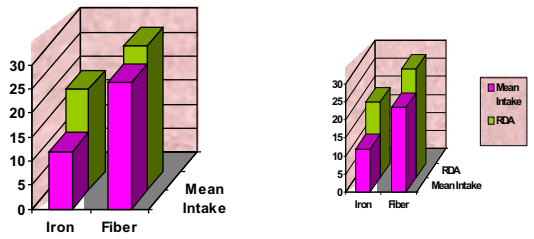


Figure3: Mean intake of fat in both groups in comparison

with RDA



F

The following are the general recommendations for the dietary management of elderly.

nImprove the quality of diet by adding liberal amounts of green-leafy vegetables, fruits and whole cereals.

nTake frequent, but small meals. Avoid fasting.

nThe daily intake of oil and ghee should not exceed 20g.

nTake plenty of water and semi solids.

nLimit intake of Non- vegetarian food items.

nReduce refined carbohydrate food stuff bread, sooji, Maida and bun.

nReduce salt intake.

nTobacco and beetle nut chewing are habits which affects food intake and should be avoided.

nLow fat milk should be substituted instead of whole fat milk.

nWalking is best form of exercise for elderly.

nAvoid inactivity, loneliness and social isolation.

SUMMARY AND CONCLUSION

It was observed that the intake of dietary fiber is low in both vegetarian and non-vegetarian groups (26gm/day) and (23.4gm/day). Emphasis should be placed on increasing the intake of fiber rich foods. Carbohydrate and fat intake is more than the RDA and the difference was found to be statistically significant. Protein intake (53.9gm/day) was found to be adequate when compared with RDA of (52.8gm/day). It is also observed that the intake of dietary fiber is lower (±26.3 - 1.5) in comparison with RDA of 30gm/day. Pertaining to Micro-nutrients except Iron intake (13mg/day) which is significantly less than RDA of (21mg/day). All the other nutrients listed in the table namely thiamin, riboflavin, vitamin c, and calcium are on par with RDA.

The Iron intake is less than the RDA in both the institutions in spite of the fact anemia is one of the major nutritional concerns in old age. Hence an adequate amount of iron rich foods like green leafy vegetables, should be included with the diet irrespective of their dietary habits.

CONCLUSIONS

The energy intake of the non-vegetarian group is more than RDA where as in case of vegetarians it is on par with the RDA. The carbohydrate content of the diet is more than 65% in case of non vegetarian and vegetarians. Protein intake of the non vegetarian is on par with RDA as against vegetarian group where it is less than RDA. The fat intake is more than the RDA in case of non-vegetarians. The intake of fiber, iron is less than RDA in both the groups. The difference are found to be statistically significant pertaining to all these nutrients. Calorie requirement has to be distributed properly throughout the day carbohydrate 60%, Protein 15% and fat 25% respectively.

Four or five meals are more acceptable than three substantial meals provided in the institutions. The importance of a balanced diet which includes foods from all food groups should be emphasized since number of servings of foods like whole grain cereals, green leafy vegetables, fruits are less in their diet. Special attention must be paid to the sick elderly inmates while feeding in order to avoid nutritional deficiencies. The fiber content of the diet in old age plays an important role since constipation is one of the common problem faced in old age.

Appropriate dietary habits and physical activity go a long way in improving the immunity in the elderly which in turn will help in combating the burden of several illnesses affecting them and improve their quality of life.

REFERENCES

.1.Ankalmadagu Venkatasubbareddy Bharathi, Anura Vishwanath Kurpad, Tinku Thomas, Salim Yusuf, Govindachar Saraswathi and Mario (2008). Development of food frequency questionnaires and a nutrient database for the Prospective Urban and Rural Epidemiological (PURE) pilot study in South India: Methodological issues, Asia Pac J Clin Nutr;17(1):178-185.

2.Arijit Ghosh and Tusharkanti Ghosh (2009), Modification of Kuppuswamy's Socioeconomic Status Scale in context to Nepal, Indian Pediatr, 46: 1104-1105.

3.Bharamam, G.N.V (1999), Nutrition and ageing. National Institute of Nutrition, Volume 33, Pg 13.

4.Bhaskaracharya, K. Sudershan Rao and Subba, G.M (2008), A Handbook for Tomorrow's Dietitians, Indian Dietetic Association, 38-46.

5.Caloric requirements Report of the committee on caloric requirements', FAO (1950), Ageing of adults and caloric requirements.

6.Gopalan, C. Ramasastry, B.V. Balasubramanyam, S.C. Narasinga Rao, B.S. Deosthale, Y.G. and Panth, K. C. (1991). Revised and updated YG, Pant KC and Narsinga Rao BS, Nutritive Value of Indian Foods, Hyderabad: National Institute of Nutrition (ICMR).

7.Gopalan, C. Ramasastri, B.V and Balasubramanian, S.C. (1999). Nutritive value of Indian Foods, National Institute of Nutrition, Indian. Council of Medical Research Publications, Hyderabad, pp.47-70.

8.Hemalatha, R. (1999), Nutrition and ageing, National Institute of Nutrition, Volume 33,Pg 7.

9.Mahatab, S. Bamji, Pralhad, Rao, and Vinodini Reddy (1998), Textbook of Human Nutrition,125-129.

10.Medical Research (1990), Nutrient Requirements and Recommended Dietary Allowances for Indians. New Delhi: ICMR.

11.Mallikarjuna Rao, K. Balakrishna, N. Arlappa, N. Laxmaiah, A. and Brahmam, G.N.V. (2010) Diet and nutritional status of women in India, J Hum Ecol 29 165.

12.Sreeramulu, D. and Raghuramulu, N. (1999). Nutrition and ageing, National Institute of Nutrition, Volume 33, 1-2.

13.Srilakshmi, B. (2006). Dietetics, Revised 5th edition, pg 114-118.

14.Sue Rodgers and Williams, Basic of nutrition and diet therapy, 11th edition.

15.Thimmayamma BVS (1987). Food consumption pattern of rural families by weighment method and expenditure pattern method of diet survey –Ind .J. Nutr. Dietet.24:34.

16.Whitney and Sharon rady. Lifecycle nutrition, understanding nutrition, 8th edition.