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DIETARY INTAKE AND NUTRITIONAL STATUS OF 60-75 YEARS ELDERLY PEOPLE IN URBAN HYDERABAD

Nutritional Science

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ABSTRACT

Old age is defined as the age of retirement that is, 60 years and above. Studies show that healthful eating, physical activity, mental stimulation, active social engagement, moderate use of alcohol, maintaining safe environment, social support, regular health care, not using tobacco are important in maintaining good healthy and independence. The Present study was conducted to assess the dietary intake and nutritional status of 60-75 years elderly people in urban Hyderabad. A Non-experimental Research Design was adopted through descriptive survey. About 120 subjects, of age (60-75 years) in Hyderabad city, were selected through convenient selective sampling. The data was collected through an offline questionnaire. It was observed that majority of the subjects were overweight i.e. 46.8% in both men and women, 31.2% were normal in women, 35.7% were normal in men, 14.2% were obese in men and 21.8% were obese in women, followed by 1.7% were underweight in men and 0% were underweight in women. The frequency of consumption of different Food groups showed that, intake of seafood was poor and there was a high consumption of dietary fats. Macro nutrients was higher from non-vegetarian sources whereas the micronutrients intake was higher in vegetarian sources. The Present study clearly indicated that, subjects in all the categories of BMI there is a need to bring an awareness to follow the particular dietary patterns which should meet all the Macro and micronutrients, vitamins through the diet so that any illness, deficiencies can be prevented.

KEYWORDS

Anthropometric measurements, Nutritional status, dietary habits, food frequency questionnaire.

INTRODUCTION

Aging is not a disease but a biological process. Aging is generally defined as a process of deterioration in the functional capacity of an individual that results from structural changes, with advancement of age. It is a normal process begins at conception and ends only with death. The changes associated with ageing are partly influenced by genetics, race and gender (Adepoju et al.,2015). The WHO defines active aging as "the process of optimizing opportunities for health, participation, and security in order to enhance quality of life as people age including those who are frail, disabled, and in need of care." Successful aging is defined not by longevity alone but also by sufficient well-being in multiple domains- socially, physically, mentally (Arlappa et al., 2016). With age, the risk of developing various diseases and conditions increases. Diseases such as Dementia, symptoms of depression, and the presence of infections are often associated with malnutrition (Baweja et al., 2014). Therefore, it is very essential to assess the nutritional status of the older adults to initiate appropriate nutrition interventions to prevent or delay the adverse health effects of malnutrition among the older people (Shalini et al., 2020).The use of anthropometry as an indicator of nutritional and health status of older adults is used. According to the WHO, BMI classification cutoff values for Chronic Energy Deficiency is BMI <16 is considered as severe, BMI of 16-16.99 is considered as Chronic Energy Deficiency (moderate), BMI of 17-18.4 is considered as mild BMI of 18.5- 24.9 is considered as normal. Nutritional status assessment is done by using 18 items (30 points) MNA scale. SGA (subjective Global Assessment) is a very widely used tool to assess the nutritional status in patients who arealready disadvantaged by acute or chronic disease (Kalia et al.,2014)

The three components for successful aging are avoiding disease, engagement with life and maintaining high physical and cognitive function (Pai, 2011). The process of aging brings about physiological, psychological and immunological changes which influences the nutritional status. In the ageing process free radicals are thought to cause degenerative changes, leading to cancer, cataract formation, atherosclerotic plaques, arthritis and Parkinson's disease (Shreyas kumar et al., 2018). Decreased physical activity and dental problems could lead to overall decrease in food intake and poor absorption of nutrients. Biological ageing leads to inadequate nutritional intake leading to malnutrition and some it results in impaired body functions like the bone health, immune function, sensory aspects like vision and hearing. It further leads to sarcopenia and reduced cognitive performance (Tripathi et al., 2016).

MATERIALS AND METHODS

The study was conducted to assess the dietary intake and nutritional status in elderly aged between 60-75yrs in Hyderabad urban by using a population based stratified Random Sampling. A total of 120 subjects were included in the study. This study was planned by the Faculty of Nutrition and Dietetics Department and performed during April-July 2022.A standard questionnaire was included to obtain their sociodemographic profile, anthropometric details. The BMI of the subjects was calculated as weight (kg) divided by height $(m)^2$ as per WHO standards. 24-hour dietary recall method of diet survey was carried out for three days, to assess the food and nutrient intakes of all the individuals. Dietary patterns using food frequency questionnaire. The mean intake of different food stuffs consumed was then compared with the balanced diet (ICMR, 2010). Intake of 9 nutrients which includes Energy, protein, carbohydrate, Fat, Fibre, calcium, iron, zinc, vitamin C were calculated. The nutrient intake was calculated using food composition tables (Gopalan et al., 1989). The intake of nutrient was compared with the RDA suggested by Indian Council of Medical Research (2010) for the geriatric men and women. The objectives of the study were kept in mind while constructing the questionnaire. The questionnaire consists of closed ended questions. Multiple choice questions constituted the questionnaire where the subject was given options to choose from. For few questions options like yes or no was provided.

Statistical Analysis

The data pertaining to sociodemographic details, Anthropometry, 24-hour dietary recall, Food Frequency questionnaire was analyzed in Excel sheets and values were expressed as mean, standard deviation. ANOVA test was applied to find out the significant difference between the mean values of BMI of the genders, Nutrient intake and Food frequency consumption by the respondents.

RESULTS AND DISCUSSION

Nutritional status of the Elderly people was calculated using the WHO BMI Classification. Nutritional Status of the subjects was depicted that, majority of the subjects i.e, 53.5% in women and 46.8% were overweight in men, 31.2% were normal in women,35.7% were normal in men, 14.2% were obese in men and 21.8% were obese in women. Least percent of the subjects i.e, 1.7% were underweight in men and 0% were underweight in women. (Table 1).

The Mean age of the Elderly was 21.43 years in Men and 23.61 years in women. The Mean height of the men was 163.12 cm, in women it was 154.57 cm. The Mean weight of the men was 59.4kg, whereas in women it was 57.3kg. The mean BMI of men was 20.13kg/m^2, 28.1kg/m^2 in women. These findings indicated that there was no relationship between the Gender and the Nutritional Status. Similar observation was reported that there was no relationship between the Gender and the status of Malnourishment among the Elderly (Avinash et al., 2018).

Table (1) Nutritional Status Of The Elderly Respondents (n= 120)

S.No	Characteristics	Men	Women	Total	ANOVA value
1	Age (Years) (Mean ±SD)	21.43 ± 0.125	23.61 ± 0.547	21.84± 0.219	1.05
2	Height (cms) (Mean ±SD)	163.12 ± 0.59	154.57 ± 0.08	161.69 ± 0.412	7.01
3	Weight (Kg) (Mean ± SD)	59.4 ± 10.15	57.3 ± 14.4	58.03 ± 12.763	13.4
4	BMI (kg/m2) (Mean± SD)	20.13± 05	28.1± 17	22.50 ± 5.237	1.75
5	Underweight	1.7%	0%	1.01±0.321	2.53
6	Normal	35.7%	31.2%	17.53±2.634	7.91
7	Overweight	46.8%	53.5%	19.48±1.481	4.42
8	Obese	14.2%	21.8%	13.752±0.539	3.52

Dietary habits of elderly respondents were recorded by using the Closed Ended Questionnaire. These responses were indicated that majority of them were Non vegetarians and remaining were vegetarians and/or Lacto-ovo-vegetarians.

It was observed that majority of them consumed three full meals a day and remaining subjects consumed more than three meals in a day. The majority of the subjects were had more than four glasses of water in a day Remaining subjects were had three glasses of water in a day. It was observed that majority of the subjects not consumed at least a glass of milk in a day, remaining of them consumed one glass and two glasses of milk in a day. Of these subjects, most of them took more than eight hours of sleep and remaining subjects had eight hours, seven hours and six hours of sleep in a day. Majority of the subjects were consumed the fruit for one time in a day and least number of subjects consumed the fruit three times a day

Table (2) Dietary Habits Of The Study Sample (n=120) .

S.no	Characteristics	Study group	
1	Dietary preference	Non-Vegetarian	84%
		Vegetarian	10%
		Lacto-ovo-vegetarian	5.8%
2	Number of Meals	3 full meals	85.8%
		>3 meals	14.1%
3	Glasses of water drink in a day	>4 glasses	96.6%
		3 glasses	3.3%
4	Glasses of milk drink in a day	<1 glass	65.8%
		1 glass	30%
		2 glasses	4.1%
5	Hours of sleep in a day	>8 hours	0.8%
		8 hours	10.8%
		7 hours	84.1%
		6 hours	3.3%

Food Consumed by the Elderly Food consumed by respondents was calculated using 24-hour dietary recall method for one day. Food intake of the respondents was affected by the Economic status and Age. The mean intake of cereals by men was 2037 g/d while the mean intake by women was 2856g/d as shown in Table 1. Among Cereals, Rice was consumed by majority of the respondents. Pulses were not consumed daily due to their flatulence property. Mean pulse intake by the men was less i.e. 1984g/d while in women it was 2173g/d. The mean intake of green leafy vegetables was less by both men and women. The mean intake of root vegetables like potato and onion was higher i.e.2019g/d while by women it was 2542g/d. Consumption of Roots was higher as they are affordable by the subjects and are also cheaper than other vegetables.

Table 3 depicts that the mean intake of other vegetables was higher i.e. 1985g/d by men while the mean by women was 2379g/d. The intake of fruits was low by both the genders. Very few respondents reported intake of fruits during the study. The mean intake of Meat and poultry by men was less i.e. 1198g/d, and the mean intake by women was high with 1959g/d main reason behind the prevalence of overweight by women. Table 3 reveals that the mean intake of seafood was less in both the genders i.e. 1127g/d in men while by women the men intake was 588.9g/d. The mean intake of Fats and oils by men was high i.e. 1985g/d while by women it was 2379g/d due to the high purchasing power of the respondents. The mean intake of Added salts and sugars by men i.e. 1857g/d was higher than the mean intake by women with 1834g/d. The frequency of consuming Seafoods was less but the quantity consumed was found satisfactory. Intake of Roots and tubers was higher by both men and women. There was significant difference in the intake of food stuffs among the Elderly respondents.

Table (3) Comparison Of Different Food Groups Based On Genders

Age group	Details	Cereals	Pulses	GLV	Roots and Tubers	Other vegetables	Fruits	Meat & Poultry	Seafood	Fats & Oils	Added salts & sugars
Men	N	56	48	41	54	52	41	28	23	52	43
	Mean	2037	1984	1834	2019	1985	1834	1198	1127	1985	1857
	SD	672.7	428.8	413.1	619.5	609.1	413.1	359.0	295.2	609.1	449.4
Women	N	64	57	32	67	61	31	42	37	61	41
	Mean	2856	2173	32.2	2542	2379	437.2	1959	588.9	2379	1834
	SD	731.1	681.5	29.1	703.7	693.7	115.6	420.4	14532.7	693.7	413.1
ANOVA		12.27	4.03	4.4	10.60	11.32	10.01	9.14	5.2	11.32	3.05

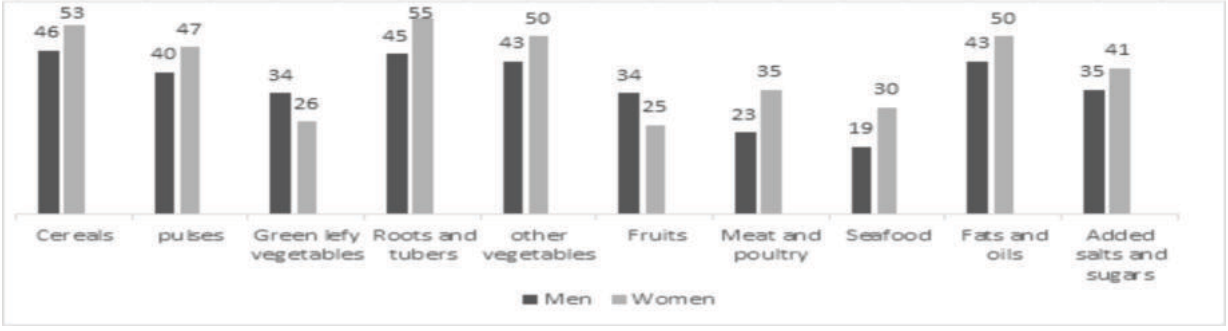

Figure 1: Percent Adequacy (% RDI) Of Food Intake By Elderly Respondents Of Men And Women

Mean Nutrient Intake of the Respondents: Mean nutrient intake of 120 respondents was calculated by using Food Composition Tables (ICMR 1989). Intake of 9 nutrients which includes Protein, fat, carbohydrate, energy, calcium, iron, Vitamin C, Zinc, Fibre were calculated.

Protein: Data in table 4 indicates that the mean protein intake by men was 72.85g and by women was 29.5g. In men, the protein intake was higher than the RDA value, and the protein intake was less than the RDA value by the women. The low protein intake was observed during one day recall method where the consumption of Milk and Milk products, Meat and poultry, pulses was found unsatisfactory with the consumption pattern data. There was no significant difference in the values of mean intake of protein in both genders.

Fat: As stated in consumption pattern of Fats and oils, the mean fat intake of men was 51.17g and women the intake was 27.43g. In both genders the protein intake was higher than the RDA values. The men preferred Red meat, dairy products like Buffalo's milk which contains higher amounts of fat than cow's milk and also the recommended dietary intake includes visible fat while the above values are combination of both visible and invisible fat. There was no significant difference in the intake of fat in both genders.

Carbohydrate: The mean value of carbohydrate in the diets of men and women was 173.57g and 164.3g. There was no significant difference between the values of carbohydrate in both genders which is clearly depicted in table 4

Energy: The mean value of energy for men was 2617.8kcal and 1207.5 kcal for women. The intake value of energy in women was less than the recommended value. Table 4 depicts that there was no significant difference between the values of energy for both genders.

Calcium: Among the five food groups milk and milk products forms a major source of calcium in diet and most of the subjects were not consumed dairy products. The mean value for calcium intake in men was 351.5mg and 341.5mg in women which was less than the recommended RDA value. Most of the subjects were consumed the milk and milk products in the form of buttermilk than milk which contains less amounts of calcium. The subjects were had a habit of consuming 2-3 cups of Tea in a day which is also a factor reason for interfering in calcium absorption.

Iron: Table 4 clearly depicts that the mean iron intake was 12.5mg in men and 11.35mg in women which was almost similar in less intake than the recommended allowances of RDA. Even due to good intake of green leafy vegetables and jaggery the values are lower because other food items consumed by men and women are not good sources of iron like Rice Sago. It contains less amount of iron than wheat flour. There was no significant difference between the values of iron intake in both the genders.

Vitamin C: Mean value for intake of vitamin C by both the genders were almost similar to the recommended RDA intake. Inclusion of Bathua, Green chillies, coriander, tomato, cabbage, drumstick leaves in their diets contributes good amount of vitamin C. Data in table 4 indicates that the mean intake of vitamin C by men was 37.5mcg whereas in women it was 35.3mcg. There was no significant difference in the values of mean intake of vitamin C in both genders.

Zinc: The mean intake of zinc in mean was 13.71mg in men and 9.0 mg in women. Maize, pulses, onion, potato, fish, dairy products, eggs, meat are the good sources of zinc. Which are included by men and women in their diets. There was no significant difference between the intake values of zinc in both the genders.

Fibre: Mean intake of fibre in diets of men and women was much below the recommended values. The mean fibre intake by men was 15.8g and 15.5g in women as indicated in table 4. This maybe because of the diets taken by the subjects are very poor sources of fibre and among five food groups, fruits and vegetables contain good amounts of fibre. The consumption of Fruits is less than the recommended intake values in both the genders. There was no significant difference in the values of fibre intake in men and women.

Table (4) : Mean Nutrient Intake Of Men And Women

Gender	Details	Protein	Fat	Carbohydrate	Energy	calcium	Iron	Vitamin C	Zinc	Fibre
Men	Mean SD	72.85 2.60	51.17 1.82	173.57 6.19	2617.8 93.4	351.5 12.5	12.5 0.44	37.5 1.33	13.71 0.48	15.85 0.56
Women	Mean SD	29.5 0.5	27.43 0.51	164.3 3.09	1207.5 22.7	341.5 6.44	11.35 0.21	35.3 0.66	9 0.16	15.5 0.29
ANOVA		0.26	0.71	0.85	0.05	1.35	0.08	0.05	0.21	0.33

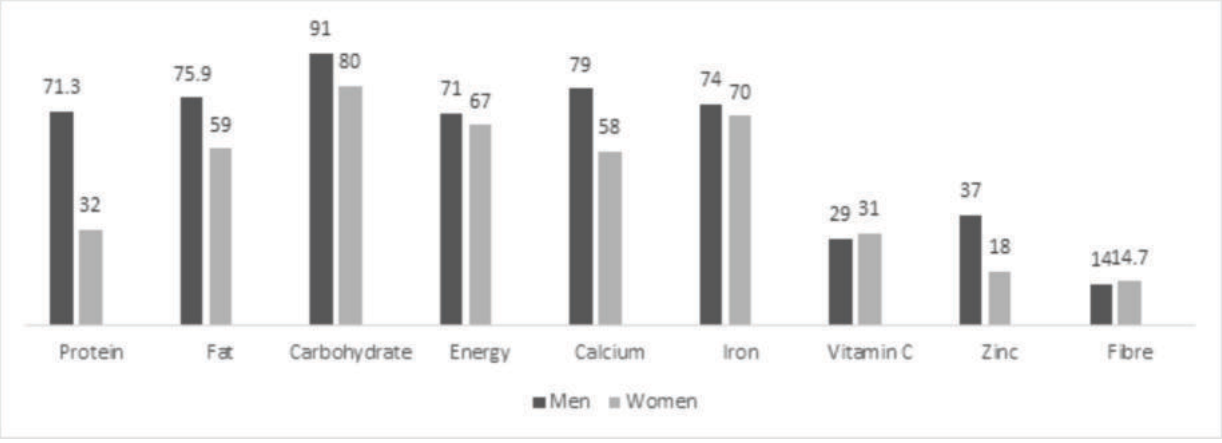

Figure 2: Percent Adequacy (% RDI) Of Food Intake By Elderly Respondents Of Men And Women

CONCLUSION

The study concludes that as nutrition is an important determinant of the quality of aging population, because of its potential to modulate the transitions from vulnerability to frailty and dependence of the elderly appropriate/ right nutrition may contribute to the healthy well-being of the elderly and to their ability to recover from illness. Therefore, it is very essential to assess the periodic nutritional status of the older adults, in terms of both dietary pattern as well as the anthropometric indices. Among Cereals, Rice was consumed by majority of the respondents. Pulses were not consumed daily due to their flatulence property. The mean intake of green leafy vegetables was less by both men and women. The intake of root vegetables like potato and onion was higher. Consumption of Roots was higher as they are affordable by the subjects and are also cheaper than other vegetables. The intake of other vegetables was higher in men while the mean by women was less. The intake of fruits was low by both the genders. Very few respondents reported intake of fruits during the study. The intake of Meat and poultry by men was less, and the intake by women was high, it is the main reason behind the prevalence of overweight by women. The intake of seafood was less in both the genders. The intake of Fats and oils by men was high while by women it was less due to the high purchasing power of the respondents. The intake of Added salts and sugars by men was higher than the intake by women. The frequency of consuming Seafood was less but the quantity consumed was found

satisfactory. Intake of Roots and tubers was higher by both men and women. There was significant difference in the intake of food stuffs among the Elderly respondents. The micronutrient intake like vitamin C and fibre was lower in men and women. Whereas the nutrient intake of carbohydrate and calcium was high in both the genders. Level of physical activity concludes that 74% of the participants were preferred to perform yoga. Thus, there is need to bring an awareness to follow the particular dietary patterns which should meet all the Macro and micronutrients, vitamins through the diet so that any illness, deficiencies can be prevented.

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