



International Journal of Home Science

ISSN: 2395-7476
IJHS 2019; 5(3): 287-290
© 2019 IJHS
www.homesciencejournal.com
Received: 21-07-2019
Accepted: 25-08-2019

Dr. Varsha Zanvar
Assistant Professor, Dept. of
Home Science, Shri Yoganand
Swami Arts College, Basmath,
Hingoli, Maharashtra, India

Madhuri Revanwar
SMS, KVK, Sagroli Dist.
Nanded, Maharashtra, India

Impact of occupation on nutritional status of selected elderly

Dr. Varsha Zanvar and Madhuri Revanwar

Abstract

Present study was conducted to see the impact of occupation on anthropometric measurements and food intake. Thus total 600 elderly residing in urban (200), rural (200) and tribal area (200) of Nanded district of Marathwada region of Maharashtra state, was covered. Anthropometric status of selected elderly was determined by recording height (cm.), weight (kg.), hip circumference (cm.), waist circumference (cm.) and body mass index was calculated using values of height and weight. On the basis of BMI, selected subjects were categorised under different grades of under nutrition. Daily food intake of each selected elderly was recorded with the help of two days dietary recall method and weighing method. By using food consumption table of ICMR (Gopalan *et al.*, 2004) the nutrient intake of the elderly was calculated. Food intake was compared with balanced diet and nutrient intake was compared with the ICMR recommended dietary allowances (ICMR 2012) to find out the percent adequacy in consumption. Results revealed that, height of elderly belonging to urban, rural and tribal area were ranged from 156.20 ± 5.86 to 164.69 ± 7.71 , 152.24 ± 23.21 to 163.11 ± 7.47 and 145.1 ± 6.20 to 153.0 ± 5.65 respectively. Majority elderly were farmers. 57 to 71 percent elderly were normal, 3.3 to 32.03 were undernourished and 6.28 to 25.75 were overweight. Significantly more food consumption was observed among retired government employee. Highest adequacy was noted for case of cereals consumption (102.68%), lowest adequacy was noted for other vegetables. Influence of occupations on nutrient intake was statistically significant. Except carbohydrate, the percent adequacy of all other nutrients was noted higher in elderly who were retired government employee as compared to other mentioned occupational group.

Keywords: occupation, nutritional status, selected elderly

Introduction

The population of the aged is on the increase the world over as never before and holds a serious social and economic implications. India is a 'mature' community and with the population above 60 years increasing steadily, by the turn of the century it will become an aging society. People over 54 years constitute about 12.4 percent of the Indian population (Bhushanam, G., 2013) ^[1]. Old age is seen to begin at the point when active contribution to the society is no longer possible. Age associated cognitive decline has been a matter of curiosity. Cognition includes all high level functions carried out by the human brain, including comprehension and formation of speech, visual perception and construction, ability to calculate, attention and memory (Tiwari, S., 2010) ^[4] hence these changes affects on their various occupations and indirectly on their nutritional status. The record of anthropometric measurements like height, weight, BMI, waist circumference, hip circumference and waist hip ratio are important to know the present health status of elderly. The functional capacity and health of the elderly depend to a greater extent on their nutritional status and food security. Average diet and nutrient intake of elderly were found to be deficient as compared to recommended daily allowances suggested for elderly. Diet plays an important role in the aging process. 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. Majority of elderly were not in position to do any laborious work, but their previous work pattern may affect on the nutritional status i.e. anthropometric measurements, food intake and nutrient intake. Occupation play very important role on such aspects as occupation is correlated with income also.

Corresponding Author:
Dr. Varsha Zanvar
Assistant Professor, Dept. of
Home Science, Shri Yoganand
Swami Arts College, Basmath,
Hingoli, Maharashtra, India

Considering the above facts researcher carried out study to assess the nutritional status of selected elderly from various occupational background.

Materials and Method

Present study was conducted to assess nutritional status of elderly population having different occupations residing in Nanded district of Marathwada region of Maharashtra state, India. Random sampling technique was used for selection of samples and 200 each were selected from urban, rural and tribal areas. Out of total elderly 334 were farmers, 142 were house wife, 66 were retired government servant and 58 were private job holders and business man by their occupation. Anthropometric measurements like weight, height was recorded by using standard methods and procedure (Jelliffe, 1966) [3] and BMI was calculated by given formula. On the basis of BMI elderly were categorised into different grades of undernutrition. Food intake was assessed by two day recall method and weighment method. By using food consumption table of ICMR (Gopalan *et al.*, 2004) [2] the nutrient intake of the elderly was calculated. The percent adequacy of food and nutrient intake was calculated by using balanced diet and recommended dietary allowances.

Result

Anthropometric measurements of selected elderly as per their occupation and area is given in Table 1. Height and weight of selected elderly among three residential areas ranged from 145.1±6.20 (tribal house wife) to 164.69±7.71 cm (urban farmers group) and 36.8±7.25 (tribal house wife) to 67.5±20.50 (tribal retired government employee). Further, BMI was noted to be lowest among tribal house wife (17.36±2.39) and highest among retired government employee from urban area (23.86±2.92). However, waist and hip circumference was noted lowest (58.1±9.70 and 67.7±11.96) among house wife of tribal area and highest (89.0±11.23 and 93.92±12.07) among elderly retired as government employee from rural area. Whereas, waist hip ratio was ranged from 0.85±0.05 (government service elderly from tribal area) to 0.94±0.04 (retired government employee of urban area). Height of the elderly who were house wife, farmers, retired government employee and private service by occupation was 156.20±5.86, 164.69±7.71, 164.47±7.23 and 159.81±25.42 respectively. While respective values for weight was 57.07±8.95, 59.22±10.84, 64.16±6.75 and 61.3±11.22. Whereas, BMI was noted 23.06±4.09, 21.66±3.01, 23.86±2.92 and 22.58±3.37. Except BMI and waist circumference, all other anthropometric measurements were noted significantly different among various occupations from urban area. In rural area, range of height was noted 152.24±23.21 (house wife) to 163.11±7.47 (private service elderly), weight ranged from 51.67±9.57 (farmers) to 59.85±11.11 (retired government employee) and range of BMI was 20.81±3.33 (farmers) to 22.80±3.37 (retired government employee). However, except BMI and hip circumference difference between all other anthropometric measurements among various occupations were significant statistically. Height, weight and BMI of tribal elderly ranged from 145.1±6.20 to 153.0±5.65, 36.8±7.25 to 67.5±20.50 and 17.36±2.39 to 20.22±1.85 respectively. However, all anthropometric measurements recorded highest values among elderly retired as government employee (153.0±5.65,

67.5±20.50, 20.22±1.85, 77.0±00, 90.5±6.36 and 0.85±0.05) and lowest among house wife (145.1±6.20, 36.8±7.25, 17.36±2.39, 58.1±9.70, 67.7±11.96 and 0.85±0.06). In nutshell, it can be inferred from above findings that, irrespective of area, except height, other anthropometric measurements were found to be highest among elderly belonged to retired from government service. However, hip circumference was recorded more among housewives. The waist hip ratio was almost equal among all elderly irrespective of occupation and area. Occupation influenced significantly on anthropometric measurements. Highest values of hip circumference among housewives was found to be more may be because of lack of exercise and presence of some diseases and life style pattern among old age in urban and rural area. It is crystal clear from result that, tribal women recorded low values for waist and hip circumference and waist hip ratio.

Prevalence of under nutrition among selected elderly on the basis of occupation is reported in Table 2. Almost among all served elderly it can be inferred that, 57 (elderly who were doing private job) to 71 percent (retired government employee) elderly were normal, 3.3 (retired government employee) to 32.03 (farmers) were undernourished and 6.28 (farmers) to 25.75 (retired government employee) were overweight. Overall, majority were normal and few were overweight.

Consumption pattern of food groups by selected elderly subjects from different occupations is shown in Table 3. Selected elderly who were in government service were consuming 281.13±69.43 gm. cereals, 32.33±15.32 gm. pulses, 35.66±39.83 gm. green leafy vegetables, 36.51±37.80 gm. other vegetables, 14.62±5.96 gm. fats and oil, 115.15±53.86 gm. milk and milk products which was significantly high than the intake by housewife, farmers, and elderly who were doing private service. Whereas, intake of roots and tubers (49.22±28.54 gm.) and fruits (33.31±40.65) was more by elderly who were doing private service. In case of intake of sugar and jiggery, there was no remarkable difference in all four groups. It was also noted that, intake of all food groups by elderly farmers was comparatively low than other elderly subjects. In nutshell, it can be concluded from table that statistically non significant difference was noted among two groups i.e. house wife and elderly who were doing either private service or government service and private service elderly for consumption of all type of food stuffs.

Table 4 illustrate the information regarding percent adequacy of food intake by the selected elderly subjects from different occupation. Percent adequacy for different food stuffs ranged from 14.05 (fruits) to 102.68 (cereals), 5.26 (other vegetables) to 82.63 (sugar and jaggery), 15.42 (fruits) to 89.09 (cereals) and 15.35 (other vegetables) to 84.74 (cereals) percent in house wife, farmers, government service and private service elderly subjects respectively. It was found that, highest adequacy was noted in case of cereals consumption (102.68%) by house wife. While, lowest adequacy was noted for other vegetables consumption by farmers (5.26%). Except sugar and jaggery, all other food group adequacy was noted lowest in farmer group as compared to other groups. Irrespective of occupation, percent adequacy was noted maximum for cereals, sugar and jaggery and pulses. Whereas, in case of fruits consumption, negligible difference was noted when compared occupation wise.

Table 1: Anthropometric measurements of selected elderly as per different occupation and area (n=600)

| Anthropometric measurements | Urban (Mean ±SD) | | | | | | Rural (Mean ±SD) | | | | | | Tribal (Mean ±SD) | | | | | |
|-----------------------------|------------------|-------------|--------------------------|--------------------|-------------------|----------------|------------------|-------------|--------------------------|--------------------|-------------------|----------------|-------------------|-------------|--------------------------|--------------------|-------------------|----------------|
| | Height (cm) | Weight (kg) | BMI (kg/m ²) | West circumference | Hip circumference | West hip ratio | Height (cm) | Weight (kg) | BMI (kg/m ²) | West circumference | Hip circumference | West hip ratio | Height (cm) | Weight (kg) | BMI (kg/m ²) | West circumference | Hip circumference | West hip ratio |
| House wife (n=88) | 156.20±5.86 | 57.07±8.95 | 23.06±4.09 | 85.07±7.77 | 92.78±9.49 | 0.91±0.03 | 152.24±23.21 | 52.04±9.76 | 21.46±3.56 | 82.61±8.98 | 90.13±10.71 | 0.91±0.03 | 145.1±6.20 | 36.8±7.25 | 17.36±2.39 | 58.1±9.70 | 67.7±11.96 | 0.85±0.06 |
| Farmer (n= 22) | 164.69±7.71 | 59.22±10.84 | 21.66±3.01 | 82.68±8.31 | 86.68±9.88 | 0.94±0.03 | 157.39±6.41 | 51.67±9.57 | 20.81±3.33 | 81.30±9.20 | 86.75±10.78 | 0.93±0.04 | 151.23±7.79 | 45.69±9.14 | 19.54±2.59 | 69.61±8.59 | 76.93±9.19 | 0.90±0.04 |
| Government service (n= 50) | 164.47±7.23 | 64.16±6.75 | 23.86±2.92 | 86.98±7.04 | 91.78±7.95 | 0.94±0.03 | 161.85±8.54 | 59.85±11.11 | 22.80±3.37 | 89.0±11.23 | 93.92±12.07 | 0.94±0.04 | 153.0±5.65 | 67.5±20.50 | 20.22±1.85 | 77.0±00 | 90.5±6.36 | 0.85±0.05 |
| Private service (n=40) | 159.81±25.42 | 61.3±11.22 | 22.58±3.37 | 84.42±8.53 | 88.6±9.22 | 0.94±0.03 | 163.11±7.47 | 55.27±8.27 | 20.85±3.13 | 83.22±8.08 | 89.33±9.76 | 0.93±0.05 | - | - | - | - | - | - |
| F value | 5.61** | 6.67** | 2.15 | 1.75 | 3.8* | 15.51** | 7.947** | 3.54* | 1.68 | 3.022* | 2.598 | 2.82* | 114.78** | 114.78** | 2600.71** | 40.1** | 4.66** | 38281.23** |
| CD | 9.09 | 6.54 | NS | NS | 6.49 | 0.02 | 4.67 | 7.03 | NS | 6.73 | NS | 0.03 | 12.96 | 12.96 | 4.3 | 14.26 | 15.38 | 0.75 |

Table 2: Prevalence of under nutrition among selected elderly on the basis of Occupation (n = 600)

| BMI | House wife (%) (n =142) | Farmer (%) (n =334) | Government service (%) (n =66) | Private service (%) (n =58) |
|---------------------|-------------------------|---------------------|--------------------------------|-----------------------------|
| Underweight (<18.5) | 24 (16.90) | 107 (32.03) | 2 (3.3) | 13 (22.41) |
| Normal (18.5 – 25) | 83(58.45) | 206 (61.67) | 47 (71.21) | 33 (56.89) |
| Overweight (>25) | 35(24.64) | 21 (6.28) | 17 (25.75) | 12 (20.68) |

Figures in parenthesis indicates percentages

Table 3: Average food intake by the selected elderly subjects from different occupation (n = 600)

| Food groups (gm) | Housewife (n=142) a | Farmer (n=334) b | Government service (n=66) C | Private service (n= 58) d | Z value | | | | | |
|------------------------|---------------------|------------------|-----------------------------|---------------------------|---------|--------|--------|---------|--------|--------|
| | | | | | a vs b | a vs c | a vs d | b vs c | b vs d | c vs d |
| Cereals | 233.64± 79.21 | 191.91± 67.22 | 281.13± 69.43 | 267.06± 74.8 | 5.49** | 4.38** | 2.82** | 9.59** | 7.17** | NS |
| Pulses | 27.77± 14.21 | 26.71± 13.93 | 32.33± 15.32 | 27.24± 11.8 | NS | 2.05* | NS | 2.76** | NS | 2.09* |
| Green leafy Vegetables | 19.73± 24.63 | 11.14± 23.75 | 35.66± 39.83 | 25.36± 27.38 | 3.53** | 3.00** | NS | 4.83** | 3.72** | NS |
| Roots and tubers | 43.37± 35.77 | 27.28± 31.55 | 44.31± 34.55 | 49.22± 28.54 | 4.65** | NS | NS | 3.71** | 5.32** | NS |
| Other vegetables | 28.9± 32.85 | 9.34± 21.61 | 36.51± 37.80 | 28.62± 32.58 | 6.54** | NS | NS | 5.67** | 4.35** | NS |
| Fruits | 28.10± 33.83 | 26.18± 34.99 | 30.84± 35.17 | 33.31± 40.65 | NS | NS | NS | NS | NS | NS |
| Fats and oil | 12.59± 5.67 | 8.55± 3.75 | 14.62± 5.96 | 13.60± 5.76 | 8.08** | 2.36* | NS | 8.09** | 6.47** | NS |
| Milk and milk products | 83.73± 54.8 | 30.14± 42.04 | 115.15± 53.86 | 91.03± 50.29 | 10.42** | 3.89* | NS | 12.12** | 8.71** | 2.57** |
| Sugar and jiggery | 15.21± 7.45 | 16.52± 8.04 | 15.83± 8.52 | 16.44± 7.41 | NS | NS | NS | NS | NS | NS |

**- Significant at 1%, *-Significant at 5 %, NS- Non significant

Table 4: Percent adequacy of food intake by the selected elderly subjects from different Occupation (n = 600)

| Food groups (gm) | Housewife (n= 142) | Farmer (n= 334) | Government service (n= 66) | Private service (n= 58) |
|------------------------|--------------------|-----------------|----------------------------|-------------------------|
| Cereals | 102.68 | 68.40 | 89.09 | 84.74 |
| Pulses | 68.92 | 59.29 | 67.62 | 56.83 |
| Green leafy Vegetables | 39.47 | 22.29 | 71.33 | 50.72 |
| Roots and tubers | 43.37 | 27.28 | 44.31 | 49.22 |
| Other vegetables | 19.15 | 5.26 | 19.43 | 15.35 |
| Fruits | 14.05 | 13.09 | 15.42 | 16.65 |
| Fats and oil | 62.66 | 38.46 | 61.65 | 57.01 |
| Milk and milk products | 27.91 | 10.04 | 38.38 | 30.34 |
| Sugar and jiggery | 76.09 | 82.63 | 79.16 | 82.24 |

Table 5: Average nutrient intake by the selected elderly subjects from different occupation (n = 600)

| Food groups (gm) | Housewife (n=142) | Farmer (n=334) | Government service (n= 66) | Private service (n=58) | Z values | | | | | |
|-------------------|-------------------|----------------|----------------------------|------------------------|----------|--------|--------|---------|---------|--------|
| | | | | | A | b | C | d | a vs b | a vs c |
| Protein (gm) | 36.04± 12.10 | 28.20± 8.78 | 45.09± 8.88 | 39.95± 10.44 | 7** | 6.11** | 2.3* | 14.19** | 8.15** | 2.95** |
| Carbohydrate (gm) | 221.95±66.51 | 182.67±54.96 | 261.71± 49.71 | 247.26± 60.46 | 3.43** | 4.80** | 2.60** | 11.60** | 7.61** | NS |
| Fat (gm) | 24.83± 9.97 | 15.05± 6.52 | 30.02± 8.09 | 26.73± 8.69 | 10.86** | 3.99** | NS | 14.25** | 9.81** | 2.17* |
| Energy (Kcal) | 1269.27±391.37 | 984.19±302.94 | 1517.37± 281.67 | 1404.92±343.28 | 7.75** | 5.19** | 2.43* | 15.43** | 8.76** | 1.97* |
| Iron (mg) | 13.27± 6.62 | 9.92± 4.71 | 16.72± 6.80 | 14.57± 6.29 | 5.58** | 3.45** | NS | 7.81** | 5.40** | NS |
| Calcium (mg) | 357.25± 163.79 | 202.39± 135.84 | 498.79± 162.66 | 394.05± 124.00 | 9.91** | 5.82** | NS | 13.88** | 10.71** | 4.05** |
| Phosphorus (mg) | 819.75± 306.77 | 611.06± 232.53 | 1050.61± 257.49 | 930.87± 274.61 | 7.26** | 5.65** | 2.93** | 12.87** | 8.36** | 2.49* |
| Vitamin C (mg) | 29.72± 23.46 | 15.13± 15.77 | 44.90± 33.18 | 36.06± 28.86 | 6.81** | 3.55** | NS | 7.13** | 5.39** | NS |

** - Significant at 1%, * - Significant at 5 %, NS - Non significant

Table 6: Percent adequacy of nutrients intake by the selected elderly as per occupation (n = 600)

| Nutrient | House wife (n=142) | Farmers (n=334) | Govt. Service (n=66) | Private service (n=58) |
|-------------------|--------------------|-----------------|----------------------|------------------------|
| Protein (gm) | 71.72 | 51.16 | 78.13 | 69.04 |
| Carbohydrate (gm) | 67.19 | 48.70 | 65.16 | 61.62 |
| Fat (gm) | 124.15 | 75.27 | 150.10 | 133.67 |
| Energy (Kcal) | 70.94 | 52.20 | 78.38 | 72.54 |
| Iron (mg) | 44.32 | 34.38 | 58.96 | 51.29 |
| Calcium (mg) | 44.65 | 25.29 | 62.34 | 49.25 |
| Phosphorus (mg) | 102.46 | 76.38 | 131.32 | 116.35 |
| Vitamin C(mg) | 74.31 | 37.84 | 112.26 | 90.17 |

Data on nutrient intake of selected elderly subjects is given in Table no 5. Table revealed that, nutrient intake was found to be more among retired government officials followed by private job holders, house wife and farmers respectively. Protein, carbohydrate, fat and energy intake was ranged from 45.09±8.88 gm to 28.20±8.78 gm, 261.71±49.71 gm. to 182.67±54.96 gm, 30.02±8.09 gm. to 15.05±6.52 gm, and 1517.35±281.67 Kcal to 984.19±302.94 kcal. Respectively. However, iron, calcium, phosphorus and vitamin c intake was also found to retired government officials line i.e. 16.72±6.80 mg to 9.92±4.71 mg, 498.79±162.66 mg to 202.39±135.84 mg, 1050.61±257.49 mg to 611.06±232.53 mg and 44.90±33.18 mg to 15.13±15.77 mg respectively. It is evident from the table that, influence of occupations on nutrient intake was statistically significant. When compared between two occupations, statistically significant difference was noted for all nutrients i.e. house wife and farmers, house wife and retired government officials, farmers and retired government officials and farmers and private job holders.

Percent adequacy of nutrient intake of the selected elderly as per their occupation is presented in Table 6. It is evident from table that, except carbohydrate, the percent adequacy of all other nutrients was noted higher in elderly who were retired government servant as compared to other mentioned occupational group. Percent adequacy of all nutrients ranged from 25.29 to 150.10 percent i.e. calcium intake among farmer and fat intake among retired government servant group. Highest adequacy was recorded for fat intake (150.10%) followed by phosphorus (131.32%) in retired government servant, private service (133.67 and 116.35%) and housewife (124.15 and 102.46%). Percent adequacy of intake of energy and protein was more than 70 percent in all groups except farmers. But difference was negligible. It was around more than 40 percent incase of iron and calcium. Intake of iron and calcium was noted higher in retired government servant elderly followed by elderly from private job.

Conclusion

It can be concluded from the result that, except height, other anthropometric measurements were found to be highest among elderly belonged to retired government service. As compared to other occupations, more elderly who were doing farming were undernourished. Statistically non significant difference was noted among two groups i.e. house wife and elderly who were doing private service and retired government employee and elderly who were doing private service for consumption of all type of food stuffs. Highest percent adequacy was noted in case of cereals consumption (102.68%) by house wife. Nutrient intake was found to be more among retired government officials followed by private job holders, house wife and farmers respectively. Except carbohydrate, the percent adequacy of all other nutrients was noted higher in elderly who were retired government servant as compared to other mentioned occupational group.

References

1. Bhushanam G, Sreedevi K, Kameshwaran J. A comparative study on the living conditions and nutritional status of elderly in paid and unpaid homes of Chennai, India. Inter. J Scientific and research publications. 2013; 3(9):2250-3153.
2. Gopalan C, Ramashastry BV, Balasubramanian SC. Nutritive Value of Indian Foods. NIN, ICMR, 2004.
3. Jelliffe DB. The assessment of nutritional status of the community. WHO monograph series, N. 1966; 53:236-254.
4. Tiwari S, Sinha AK, Patwardhan K, Gehlot S, Gambhir IS, Mohapatra Sc. Prevalence of health problems among elderly: A study in a rural population of Varanasi. Ind. J Preventive Social. Medicine. 2010; 41(3):226-230.