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# Influence of socio-economic parameters on food and nutrient intake

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**Abstract**
A study was conducted to assess the influence of socio-economic parameters on food and nutrient intake of 300 women of Nanded district of Marathawada region of Maharashtra state. Food intake was assessed by 24 hours' recall method. Nutrient intake was calculated on the basis of food intake using the nutritive value of foods. The results of the study revealed that irrespective of different factors like area, age, food habit and family income the mean food intake was very low in all groups compared to recommended dietary allowances. Non-significant difference was noted for all food groups when compared among groups. Nutrient intake was found to low when compared with RDA except fat. However, iron intake was almost equal to RDA in all groups.

**Keywords:** Selected women, food intake, nutrient intake

## Introduction
Women invariably perform the duties of both employees and the housewives. This dual role entails heavy mental and physical effort which often leads to complete exhaustion of women due to over work. Good health is a requirement throughout life and vital to women in terms of their daily activities. To overcome these problems daily diet of the women should be nutritious. But health is a crucial area where no due attention has been paid for women. Nutritional surveys indicate large gaps in nutritional requirements and consumption among females as compared to males. A majority of rural and tribal women suffer from anaemia which leads to low birth weight among babies (Jhamtani, 1995) [2].

The food requirement of the people varies greatly depending on various factors. Apart from non-occupational activities like walking, dressing, eating, etc., the energy requirement changes depending upon the various activities that one has to perform in his or her daily occupation such as agricultural activities, stone cutting, loading, etc. (Bhoyar, 2014) [1].

Health is fundamental to human progress. Women's health status affects their productivity and thereby their roles in society and their own development. Nutrition is closely interlinked with health. Low nutritional status of woman makes her more prone to several diseases. It has notifying significance in case of women, because they have to bear and rear children. Hence the present study was conducted to know the dietary intake women with following specific objectives -

1. To study the food intake of the selected women.
2. To study the nutrient intake of selected women.

## Materials and Methods
A sample of 300 households from urban and rural area of Nanded city was selected randomly for the present study. Diet survey was carried out for all selected 300 households. The information regarding food consumption pattern of selected subject was obtained by personal interview method. The 24-hour recall method was used to assess the food and nutrient intake of the selected subjects. The intake of the food in cooked form was converted into raw food ingredients and the nutrient value of the raw foods was determined intake of the subject per day following the nutritive value of Indian foods. The mean nutrient intake of subjects was compared with Recommended Dietary Allowances of ICMR (2000).

**Result and discussion**

The mean food intake of selected women of rural and urban area is presented in Table 1. It was observed from the table that the cereals consumption of rural and urban women was 290.64 and 277.58gm per day respectively, which was found to be far below than ICMR recommended value. Pulses consumption was almost same in both area i.e. 39.9 and 39.66 gm/day. The consumption of green leafy, root and tubers, other vegetables, fruits and milk, fats and oil and sugar and jiggery for rural and urban area was 20.15 and 29.33gm, 21.75 and 22.32gm, 39.72 and 40.04gm, 11.16 and 2.46 gm and 57.5 and 33.2gm, 11.26 and 20.33 and 20.00 and 20.48 respectively.

When compared with RDA it was found that all the recorded per day mean food intake was far below than recommended dietary allowances by ICMR. When seen critically difference in amount of consumption of all types of food was negligible among both areas except for fruit. However, when compared with RDA inadequate consumption of all types of foods was noticed which may directly have influenced on anthropometric measurements of selected women.

Table 2. Revealed data on mean food intake of selected women as per age group. The consumption of cereals, pulses, leafy vegetables, root and tubers, other vegetables, fat and oil, sugar and jaggary and milk for 20-40 years and 40-60 years were 283.5 to 284.63 gm, 40.78 to the mean food intake of selected studied women as per food habits is presented in Table 3. The consumption of pulses, root and tubers and milk was found to be more in non-vegetarian group women while cereals, leafy vegetables, other vegetables and fruits consumption was more in vegetarian groups. All food groups exhibited non-significant difference when compared among vegetarian and non-vegetarian group. The consumption of fruit was found to be grossly inadequate, whereas only 6.44 to 7.20 gm of fruits were consumed against the recommendations of 100gm/day. When noticed critically in comparison with ICMR recommendation the consumption of all food groups was found to be grossly inadequate.

Table 4. Revealed the information on mean food intake of selected women as per monthly family income. The cereal and pulses consumption ranged from 278.64±26.29 to 287.31±24.70 and 38.55±9.78 to 40.28±11.50 gm/day. However, in case of green leafy vegetables, root and tubers, other vegetables, fruits and milk compared to all other food groups intake was very low when compared with ICMR recommendations. Consumption of cereals and fat and sugar was better when compared with RDA. Statistically non-significant difference was noted for all food groups between different income groups. Income of the family was not influenced more on consumption of all foods. When critically seen it was noted that all type of vegetables was deficient around 70 percent when compared with RDA. However, in case of fruits and milk consumption all the income groups show grossly very least 80 percent deficient intake when compared with RDA.

Nutrient intake of selected women as per area is presented in Table 5. Nutrient intake was calculated on the basis of food intake. Intake of nutrients i.e. energy, fat, vitamin-c and calcium was reported more in urban areas. Whereas β-carotene intake was more in rural areas women. Intake of protein and iron was found to be almost same in rural and urban women. Except fat other nutrient intake was found to low when compared with RDA. However, iron intake was almost equal to RDA. Statistically significant different was noted for nutrient like iron. Urban women recorded significant higher values for intake of all nutrients except for iron.

Nutrient intake of selected women as per age is described in Table 6. It is revealed from the table that intake of energy, protein, calcium and carotene was below RDA, whereas intake of fat iron and vitamin-c was found to be as equal as RDA. When compared between two age groups slight different was noted in intake of all nutrients. Non-significant difference was noted for all nutrients where compared with RDA.

Table 7. Revealed data on intake of different nutrients of selected women when categorized on the basis of food habits. Protein and energy intake ranged from 45.71 to 46.79gm and 2031.96 to 2005.34kcal/day. Protein, fat and calcium was found to be more in non-vegetarians than vegetarian's women, but much difference was not recorded among them. Intake of iron and Vit-C content was at par in both groups. All nutrients exhibited statically nonsignifying different when compared between them.

Nutrient intake of selected women as per family income is depicted in Table 8. It is evident from table that as the income increased the intake of different nutrients increased slightly. The intake of protein ranged between 44.99 to 46.43gm/day were the lowest value was recorded by income group 5000-10,000/- highest value was recorded by high income group i.e. >15,000/- per month. When compared with RDA intake was deficient. The energy, fat, calcium, β-carotene, iron and vitamin-c intake ranged between 1975.23 to 2053.11 Kcal, 24.26 to 24.51gm, 390.79 to 441.22 mg, 1490.98 to 1553.13ug, 19.78 to 21.34 mg and 37.93 to 3.69mg respectively. Between three income groups slight difference was noted when compared. All nutrients the women of adjacent income groups exhibited statistically non-significant difference between them.

**Table 1:** Mean food intake of selected women of urban and rural areas (n=300)

| Particulars | Cereals (gm) | Pulses (gm) | Gr. Leafy veg. (gm) | Roots & tubers (gm) | Other veg. (gm) | Fruits (gm) | Milk (gm) | Fats & oil (gm) | Sugar & jiggery (gm) |
|---|---|---|---|---|---|---|---|---|---|
| Rural | 290.64±21.63 | 39.19±10.97 | 20.15±13.12 | 21.75±9.55 | 39.72±17.36 | 11.16±14.64 | 57.5±15.87 | 17.26±2.74 | 20.00±00 |
| Urban | 277.58±25.80 | 39.66±9.47 | 29.33±12.54 | 22.32±8.19 | 40.04±13.05 | 2.46±8.48 | 66.0±18.90 | 20.33±1.21 | 20.48±1.42 |
| RDA | 360 | 75 | 100 | 100 | 100 | 100 | 300 | 30 | 25 |
| 't' value Rural Vs. Urban | 1.69NS | 0.34NS | 0.21NS | 0.27NS | 0.42NS | 6.13** | 1.15NS | 2.48NS | 2.53* |

NS - Non significant
* - Significant at 5 percent
** - Significant at 1 percent

**Table 2:** Mean food intake of selected women as per age (n=300)

| Particulars | Cereals (gm) | Pulses (gm) | Gr. Leafy veg. (gm) | Roots & tubers (gm) | Other veg. (gm) | Fruits (gm) | Milk (gm) | Fats & oil (gm) | Sugar & jaggery (gm) |
|---|---|---|---|---|---|---|---|---|---|
| 20-40 | 283.5±25.40 | 40.78±10.74 | 30.85±13.27 | 22.19±8.73 | 38.95±15.62 | 5.43±11.49 | 62.29±17.84 | 18.94±2.46 | 20.36±1.24 |
| 40 and above | 284.63±24.30 | 38.29±9.79 | 26.96±12.39 | 21.90±9.10 | 40.66±15.20 | 7.97±13.67 | 61.47±18.23 | 18.68±2.75 | 20.13±0.79 |
| RDA | 360 | 75 | 100 | 100 | 100 | 100 | 300 | 25 | 30 |
| 't' value Rural Vs. Urban | 0.33NS | 0.01NS | 0.06NS | 0.35NS | 0.15NS | 0.04NS | 0.31NS | 0.21NS | 0.05NS |

NS - Non significant
* - Significant at 5 percent
** - Significant at 1 percent

**Table 3:** Mean food intake of selected women as per different food habits (n=300)

| Particulars | Cereals (gm) | Pulses (gm) | Gr. Leafy veg. (gm) | Roots & tubers (gm) | Other veg. (gm) | Fruits (gm) | Milk (gm) | Fats & oil (gm) | Sugar & jaggery (gm) |
|---|---|---|---|---|---|---|---|---|---|
| Vegetarian | 284.86±25.06 | 38.43±10.75 | 29.45±13.03 | 21.76±8.69 | 40.16±15.54 | 7.02±12.73 | 61.42±17.82 | 18.78±2.62 | 20.19±0.90 |
| Non-vegetarian | 282.75±24.17 | 41.22±9.12 | 27.45±12.57 | 22.52±9.33 | 39.38±15.13 | 6.44±12.83 | 62.61±18.43 | 18.83±2.62 | 20.32±1.24 |
| RDA | 360 | 75 | 100 | 100 | 100 | 100 | 300 | 25 | 30 |
| 't' value Rural Vs. Urban | 0.23NS | 0.01NS | 0.09NS | 0.24NS | 0.33NS | 0.35NS | 0.29NS | 0.43NS | 0.13NS |

NS - Non significant
* - Significant at 5 percent
** - Significant at 1 percent

**Table 4:** Mean food intake of selected women as per different income group (n=300)

| Particulars | Cereals (gm) | Pulses (gm) | Gr. Leafy veg. (gm) | Roots & tubers (gm) | Other veg. (gm) | Fruits (gm) | Milk (gm) | Fats & oil (gm) | Sugar & jaggery (gm) |
|---|---|---|---|---|---|---|---|---|---|
| 5000-10,000/- | 286.19±22.36 | 38.55±9.78 | 30.43±13.94 | 22.81±9.84 | 40.02±17.02 | 9.13±14.28 | 59.48±18.29 | 18.21±2.71 | 20.05±0.50 |
| 10,000-15,000/- | 287.31±24.70 | 40.28±11.50 | 27.79±12.16 | 21.83±8.79 | 38.83±15.04 | 7.25±12.86 | 62.16±17.85 | 18.31±2.81 | 20.21±0.92 |
| 15,000 and above | 278.64±26.29 | 39.39±9.36 | 28.06±12.59 | 21.47±8.09 | 40.86±14.04 | 4.03±10.39 | 68.87±17.82 | 19.89±1.89 | 20.45±1.43 |
| RDA | 360 | 75 | 100 | 100 | 100 | 100 | 300 | 30 | 25 |
| 't' value 1 Vs. 2 | 0.36NS | 0.36NS | 0.07NS | 0.22NS | 0.29NS | 0.16NS | 0.14NS | 0.39NS | 0.06NS |
| 2 Vs. 3 | 0.08NS | 0.27NS | 0.43NS | 0.38NS | 0.16NS | 0.02NS | 0.24NS | 3.03** | 0.08NS |
| 1 Vs. 3 | 0.15NS | 0.27NS | 0.10NS | 0.15NS | 0.35NS | 0.02NS | 0.04NS | 5.35** | 0.04NS |

NS - Non significant
* - Significant at 5 percent
** - Significant at 1 percent

**Table 5:** Nutrient intake of selected women of urban and rural areas (n=300)

| Particulars | Energy (Kcal.) | Protein (g/100 g) | Fat (g/100 g) | β-Carotene (mg/100gm) | Ascorbic Acid (mg/100g) | Calcium (mg/100 g) | Iron (mg/100 g) |
|---|---|---|---|---|---|---|---|
| Rural | 1998.99±102.86 | 45.37±5.12 | 26.94±3.58 | 1529.09±661.31 | 36.97±6.02 | 399.58±168.51 | 20.25±2.18 |
| Urban | 2045.08±169.71 | 46.82±4.27 | 35.30±11.65 | 1446.31±802.27 | 39.10±6.93 | 431.81±89.98 | 20.95±2.17 |
| RDA | 2230 | 55 | 25 | 4800 | 40 | 600 | 21 |
| 't' value Rural Vs. Urban | 0.02NS | 0.04NS | 0.23NS | 0.16NS | 0.02NS | 0.02NS | 4.00** |

NS - Non significant
* - Significant at 5 percent
** - Significant at 1 percent

**Table 6:** Nutrient intake of selected women as per age and area (n=300)

| Particulars | Energy (Kcal.) | Protein (g/100 g) | Fat (g/100 g) | β-Carotene (mg/100gm) | Ascorbic Acid (mg/100g) | Calcium (mg/100 g) | Iron (mg/100 g) |
|---|---|---|---|---|---|---|---|
| 20-40 | 2017.21±225.21 | 46.36±5.88 | 24.80±10.48 | 1496.67±614.04 | 38.48±6.23 | 436.73±173.88 | 20.65±2.14 |
| 40 above | 2026.95±138.85 | 45.88±5.09 | 24.09±10.69 | 1480.07±829.23 | 37.66±6.87 | 397.97±89.57 | 20.56±2.28 |
| RDA | 2230 | 55 | 25 | 4800 | 40 | 600 | 21 |
| 't' value | 0.26NS | 0.19NS | 0.27NS | 0.38NS | 0.16NS | 0.01NS | 0.41NS |

NS - Non significant
* - Significant at 5 percent
** - Significant at 1 percent

**Table 7:** Nutrient intake of selected women as per different food habits (n=300)

| Particulars | Energy (Kcal.) | Protein (g/100 g) | Fat (g/100 g) | β-Carotene (mg/100gm) | Ascorbic Acid (mg/100g) | Calcium (mg/100 g) | Iron (mg/100 g) |
|---|---|---|---|---|---|---|---|
| Vegetarian | 2031.96±145.08 | 45.71±5.76 | 23.41±10.93 | 1512.04±7.89 | 38.04±6.70 | 407.35±82.05 | 20.48±2.25 |
| Non-vegetarian | 2005.34±236.54 | 46.79.4.80 | 26.24±9.75 | 1443.68±16.35 | 38.03±6.42 | 430.69±199.57 | 20.81±2.12 |
| RDA | 2230 | 55 | 25 | 4800 | 40 | 600 | 21 |
| 't' value | 0.03NS | 0.03NS | 0.01NS | 0.22NS | 0.49NS | 0.07NS | 0.11NS |

NS - Non significant
* - Significant at 5 percent
** - Significant at 1 percent

**Table 8:** Nutrient intake of selected women as per different income group and area (n=300)

| Particulars | Energy (Kcal.) | Protein (g/100 g) | Fat (g/100 g) | β-Carotene (mg/100gm) | Ascorbic Acid (mg/100g) | Calcium (mg/100 g) | Iron (mg/100 g) |
|---|---|---|---|---|---|---|---|
| 5000-10000/- | 1975.23±222.18 | 44.99±4.89 | 24.26±8.87 | 1490.98±607.92 | 37.93±5.99 | 390.79±83.07 | 19.78±2.06 |
| 10,000-15,000/- | 2037.81±144.80 | 46.84±6.70 | 24.48±10.52 | 1422.85±637.59 | 37.52±6.70 | 415.05±81004 | 20.68±2.22 |
| 15,000 and above | 2053.11±164.27 | 46.43±4.39 | 24.51±12.25 | 1553.13±931.03 | 38.69±7.04 | 441.22±61.96 | 21.34±61.96 |
| RDA | 2230 | 55 | 25 | 4800 | 40 | 600 | 21 |
| 't' value 1 Vs. 2 | 0.03NS | 0.04NS | 0.43NS | 0.21NS | 0.32NS | 0.01NS | 0.01NS |
| 2 Vs. 3 | 0.24NS | 0.26NS | 0.49NS | 0.12NS | 0.11NS | 0.11NS | 0.01NS |
| 1 Vs. 3 | 4.28** | 0.62NS | 0.43NS | 0.29NS | 0.21NS | 1.14NS | 1.70NS |

NS - Non significant
* - Significant at 5 percent
** - Significant at 1 percent

## Conclusion

A study was conducted to assess the influence of socio-economic parameters on food and nutrient intake of 300 women of Nanded district of Marathawada region of Maharashtra state. Food intake was assessed by 24 hours' recall method. Nutrient intake was calculated on the basis of food intake using the nutritive value of foods. The results of the study revealed that irrespective of different factors like area, age, food habit and family income the mean food intake was very low in all groups compared to recommended dietary allowances. Non-significant difference was noted for all food groups when compared among groups. Nutrient intake was found to low when compared with RDA except fat. However, iron intake was almost equal to RDA in all groups.

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