

A comparative study on dietary patterns and nutritional status among working and non-working women of Keonjhar city

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■ **ABSTRACT :** The purposes of this study were to study the dietary patterns and health and nutritional status of the working and non-working women in Keonjhar city. A total of 55 working women and 55 non-working women in between the age of 25 to 40 years were selected randomly and comparison was done between these two groups. Height, Body weight and body mass index (BMI) were taken as variables for measurement of health and nutritional status of the respondents. Result shows that non-working women group were superior in weight and BMI than working women. As per the dietary pattern the observed value of X^2 was found to be significant at $p < 0.05$ in case of intake of major meal of the day, consumption of snacks per day and taking meal outside criteria.

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Women constitute about half of our country's population. In the recent years with the increasing access to education it has resulted in their intellectual awakening and money earning capacity. But women in India are still more susceptible to and are trapped in the vicious cycle of disease and illness because of prevailing culture and traditional practices and as a result the overall health and nutritional status of women becoming worse affected. Malnutrition adversely affects women's participation in the economic system and their productivity. To break this fierce paradox it is important to focus simultaneously on women's nutrition-related roles and their nutritional

status (Mathur *et al.*, 2015).

With increased opportunities of employment for women and the need to supplement household income; more and more women are entering the job market. In 2011-2012, women comprised 24.8 per cent of all rural workers and 14.7 per cent comprised of all urban workers (Indiastat.com, 2014). 13.4 per cent of Indian working women have a regular salaried job compared to 21.2 per cent of working men (aged 15-59) (International Labour Organization, 2014). Although more women seek work, a vast majority of them get only poorly paid jobs in the informal sector, without any job security or social security.

The educational level, position, health and nutritional status of the women are central to the quality of life and are key determinants of family health (Jyothilakshmi and Prakash, 2004). It is usually believed that women's employment has potential to benefit in increasing household income as well as household nutrition if the decision making and income disposal power are exercised by them. Poor nutritional status, anaemia, cultural practices (eating last), increased workload due to dual responsibilities lead to fatigue among working women which result in irritability, depression, mood swings etc. Good nutritional status affects not only the working capacity but also improves the quality of life. Housewives were engaged in their households' works whereas the working women were engaged with professional works in their respective field. Each group of women had different life style and workloads for which they might have different fitness level as well as different health status. Present study was designed to find out the health and nutritional status of non-working housewives and working women of Keonjhar city.

■ RESEARCH METHODS

Objectives:

Keeping in view the above facts, the present study has therefore, been designed to compare the nutrient intake among working and non-working women in Keonjhar city with following specific objectives :

- To study the socio-economic status of working and non-working women.
- To assess the nutritional status of working and non-working women.
- To study the dietary pattern and nutrient intake of the participants.

Research design:

Hundred and ten women (55 working and 55 non-working house-wives) aged 25-40 years from Keonjhar city were selected randomly as the respondents for the study. Age of the subject was considered to the nearest whole number.

Data collection:

A structured questionnaire was developed in keeping view the objectives of the study to assess the socio-economic status, anthropometric profile, dietary

practices and nutrient intake of the respondents. The data has been analysed by suitable statistical methods.

The anthropometric measurements:

Height of the respondents was measured while the subject was standing without foot wear, to the nearest 0.1 cm, using a portable Anthropometry rod. Weight was measured with the subject standing and wearing light clothes using a portable electronic weight machine. The formula for Body Mass Index (BMI) prescribed by WHO, weight (kg)/ height (m²) was used to calculate Body Mass Index (BMI) and international cut-off for BMI was used for classification of subjects as malnourished/ malnutrition (BMI below 18.0 kg/m²), normal 18<BMI>25kg/m²), over weight (25 <BMI<30 kg/m²) and obesity (BMI>30kg/m²) (Priyadarshini, 2015).

■ RESEARCH FINDINGS AND DISCUSSION

Table 1 depicts the demographic profile of the respondents who fall under different category of age groups, type of work, working hours per day, type of family with number of members in family, educational qualifications and family monthly income

Anthropometric parameters:

From Table 2A, the mean height of the working women was found to be 152.67 cm and that of non working women was 152.51 cm. among the working women standard variation was more in 35-40 years of age group and among non-working women, it was maximum in 25-30 years age group, thus maximum variation in height was in these age group. It was observed that with increase in the age group the height of the respondents was also found to be increasing.

Table 2B shows the mean weight of the working and non-working women respondents as 53.782 kg and 54.82 kg, respectively. The more variation in weight was found in age group of 25 -30 years in both the categories. It was observed that with increase in the age group the weight of the respondents was also found to be increasing.

Table 2C reveals the mean BMI of the respondents. Mean BMI for working women was found to be 23.06 and for non-working women 23.6. In working women group more variation was observed in 25 – 30 years age group whereas among the non-working respondents

variation was more in 35 – 40 years of age group.

Table 2D shows the categorisation of working and

non-working women respondents according to BMI grade. 76.36 per cent of the respondents were in normal

Table 1 : Socio-economic status of working and non-working women (n = 110)						
	Working women		Non-working women		Total	
	F	%	F	%	F	%
Age group						
25 – 30	12	21.82	08	14.55	20	18.18
30- 35	20	36.36	22	40	42	38.18
35 – 40	23	41.82	25	45.45	48	43.64
Total	55	100	55	100	110	100
Type of works						
Sedentary workers	36	65.45	55	100	91	82.73
Moderate workers	13	23.64	-	-	13	11.82
Heavy workers	06	10.91	-	-	06	5.45
Total	55	100	55	100	110	100
Working hours						
5-8 hrs/day	50	90.91	47	85.45	97	88.18
>8 hrs/day	05	9.09	08	14.54	13	11.82
Total	55	100	55	100	110	100
Education level						
Illiterate	02	3.64	04	7.27	06	5.45
Primary	03	5.45	07	12.73	10	09.09
High School	05	9.09	11	20	16	14.55
+2	14	25.45	24	43.64	38	34.55
Graduation and above	31	56.36	09	16.36	40	36.36
Total	55	100	55	100	110	100
Family type						
Nuclear	42	76.36	40	72.73	82	74.55
Joint	13	23.64	15	27.27	28	25.45
Total	55	100	55	100	110	100
Family size						
Upto 5 members	41	74.55	38	69.09	79	71.82
6 and above	14	25.45	17	30.91	31	28.18
Total	55	100	55	100	110	100
Family income						
Upto Rs. 10,000	11	20	12	21.82	23	20.91
Rs. 10,000 – Rs. 20,000	16	29.1	21	38.18	37	33.64
Rs. 20,000 – Rs. 30,000	19	34.54	18	32.73	37	33.54
Rs. 30,000 and above	09	16.36	04	7.27	13	11.81
Total	55	100	55	100	110	100

Table 2 A : Mean height of working and non-working women respondents (n = 110)						
Age group	Working women			Non-working women		
	Number	Mean height (cm)	SD	Number	Mean height (cm)	SD
25 – 30	12	152.458	±1.994	08	152.038	±1.037
30- 35	20	152.72	±2.007	22	152.705	±0.824
35 – 40	23	152.839	±2.182	25	152.8	±0.736
Mean	55	152.672	±2.061	55	152.514	±0.865

BMI range whereas 10 per cent were over-weight, 6.36 per cent were found to be pre-obese category. 7.28 per cent of the respondents were under mild-thinness category.

Table 3 depicts the dietary patterns and nutrient intake of the respondents. 32.73 per cent of the working women and 33 per cent of the non-working women were vegetarian and 67.27 per cent of working women and 77 per cent of the non-working women had non-vegetarian food habit. The comparison of heaviest meal among the respondents, 41.82 per cent of the working women reported dinner as the heaviest meal and 61.82 per cent of the non-working women reported lunch as the heaviest meal of the day. Breakfast as the heaviest meal of the day was reported by 23.64 per cent of the working women and 16.36 per cent of the non-working women. Due to morning hour rush the respondents lacked the time for a proper breakfast. Working women

felt a less burdened at the night time and could spend more time in kitchen as compared to morning hours. They tend to include more food items in dinner as compared to lunch which was packed lunch usually comprised of rice/chapatti with one curry. But in case of working single women staying away from family, lacked the zeal to cook elaborate meals. As the case of non-working house wives, they informed to spend maximum time in cooking the lunch which was their heaviest meal of the day. 67.27 per cent of the working women and 43.64 per cent of the non-working women took one snacks per day in between meals. 14.55 per cent of the working women and 38.18 per cent of the non-working women reported to have no snacks in between meals in a day. Working women preferred the snack in the evening time. To the question of intake of meals outside among the working women 41.82 per cent eat weekly, 15 per cent fortnightly and 15 per cent monthly outside. In-case of non-working women respondents,

Age group	Working women			Non-working women		
	Number	Mean weight (kg)	SD	Number	Mean weight (kg)	SD
25 – 30	12	52.25	±6.220	08	52.625	±6.582
30- 35	20	53.75	±5.041	22	54.273	±5.819
35 – 40	23	55.348	±5.366	25	57.560	±6.029
Mean	55	53.782	±5.542	55	54.82	±6.143

Age group	Working women			Non-working women		
	Number	Mean BMI	SD	Number	Mean BMI	SD
25 – 30	12	22.5	±3.60	08	22.8	±2.68
30- 35	20	23	±3.12	22	23.3	±3.05
35 – 40	23	23.7	±2.86	25	24.7	±3.58
Mean	55	23.06	±3.193	55	23.6	±3.103

BMI	Working women		Non-working women		Total	
	n	%	n	%	n	%
Underweight						
<16.00 - Severe thinness	-	-	-	-	-	-
16.00 - 16.99 - Moderate thinness	-	-	-	-	-	-
17.00 - 18.49 - Mild thinness	05	9.09	03	5.45	08	7.28
18.50 - 24.99 - Normal range	44	80	40	72.73	84	76.36
≥25.00 – Overweight	04	7.27	07	12.73	11	10
25.00 - 29.99 - Pre-obese	02	3.64	05	9.09	07	6.36
Obese						
30.00 - 34.99 - class I	-	-	-	-	-	-
Total	55	100	55	100	110	100

30.91 per cent took food outside monthly and 21.82 weekly and 20 per cent fortnightly. Working women preferred to have food outside weekly or fortnightly due

to better affordability and to change the routine and also to save her from cooking task. 76.36 per cent of the working women and 67.27 per cent of the non-working

Table 3 : Dietary pattern and nutrient intake of the respondents (n = 110)						
	Working women		Non-working women		Total	
	n	%	n	%	n	%
Dietary pattern						
Vegetarian	18	32.73	15	27.27	33	30
Non-vegetarian	37	67.27	40	72.73	77	70
Total	55	100	55	100	110	100
$X^2 = 0.388$ not significant at $p < 0.05$.						
Major meal (heaviest) of the day						
Breakfast	13	23.64	09	16.36	22	20
Lunch	19	34.55	34	61.82	53	48.18
Dinner	23	41.82	12	21.82	35	31.82
Total	55	100	55	100	110	100
$X^2 = 8.432$ is significant at $p < 0.05$.						
Intake of snacks per day						
Never	08	14.55	21	38.18	29	26.36
Once	37	67.27	24	43.64	61	55.45
Twice or more	10	18.18	10	18.18	20	18.18
Total	55	100	55	100	110	100
$X^2 = 8.598$ is significant at $p < 0.05$.						
Take meal outside						
Never	02	3.64	15	27.27	17	15.45
Daily	-	-	-	-	-	-
Weekly	23	41.82	12	21.82	35	31.82
Fortnightly	15	27.27	11	20	26	23.64
Monthly	15	27.27	17	30.91	32	29.09
Total	55	100	55	100	110	100
$X^2 = 0.0147$ is significant at $p < 0.05$.						
Awareness related to balanced diet						
Yes	42	76.36	37	67.27	79	71.82
No	13	23.64	18	32.73	31	28.18
Total	55	100	55	100	110	100
$X^2 = 1.122$ is not significant at $p < 0.05$.						

Table 4 : Distribution of respondents according to food frequency (n = 110)								
Food groups	Working women				Non-working women			
	Daily	Twice per week	Once per week	Occasionally	Daily	Twice per week	Once per week	Occasionally
Cereal	55 (100%)	-	-	-	55 (100%)	-	-	-
Pulses	39 (70.91%)	14 (25.45%)	02 (3.64%)	-	45 (81.82%)	06 (10.91%)	04 (7.27%)	-
Green leafy vegetables	26 (47.27%)	19 (34.55%)	09 (16.36%)	01 (1.82%)	28 (50.91%)	18 (32.73%)	07 (12.73%)	02 (3.64%)
Roots and tubers	29 (52.73%)	22 (40%)	04 (7.27%)	-	34 (61.82%)	15 (27.27%)	06 (10.91%)	-
Fruits	40 (72.73%)	11 (20%)	03 (5.45%)	01 (1.82%)	27 (49.09%)	08 (14.55%)	06 (10.91%)	14 (25.45%)
Fats and oil	55 (100%)	-	-	-	55 (100%)	-	-	-
Milk and milk products	41 (74.55%)	10 (18.18%)	04 (7.27%)	-	35 (63.64%)	17 (30.91%)	01 (1.82%)	02 (3.64%)
Fleshy foods	02 (3.64%)	11 (20%)	21 (38.18%)	03 (5.45%)	02 (3.64%)	09 (16.36%)	25 (45.45%)	04 (7.27%)
Sugar and jaggery	48 (87.27%)	07 (12.73%)	-	-	45 (81.82%)	06 (10.91%)	04 (7.27%)	-

Dietary Guidelines for Indians -A Manual (2011). National Institute Of Nutrition, Hyderabad

Nutrient intake	Working women			Non-working women
	Sedentary	Moderate	Heavy	Sedentary
Energy (Kcal)	1832 (-3.58)	2096 (-6.008)	2678.5(-6.02)	1876(-1.26)
Protein (g)	47.8 (-13.09)	48 (-12.73)	51.4 (-6.55)	46.2 (-16)
Fat (g)	24.3 (+2.5)	26.2 (+4.8)	31.3 (+4.33)	25.5 (+2.75)
Iron (mg)	20 (-4.76)	20.4(-2.86)	19.3 (- 8.1)	21.4 (+1.9)
Calcium (mg)	396.5(-33.92)	431.4(-28.1)	428 (-28.66)	428.6(-28.56)

Figures in parenthesis indicate percentage of deficit/ increase from RDA

women had knowledge about balanced diet. The observed value of X^2 was found to be significant at $p < 0.05$ in case of intake of major meal of the day, consumption of snacks per day and taking meal outside criteria.

Table 4 indicated the number and percentage of respondents according to their food frequency. Though working women were about the importance of green leafy vegetables, but due to lack of time only 47.27 per cent of them could include green leafy vegetables daily in their diet. About 72 per cent of the working women informed to consume various seasonal fruits on daily basis whereas in case of non-working women it was 49.09 per cent. Due to more affordability among the working women consumption of foods like fruits, diary products and fleshy foods were more in comparison to that of non-working women.

Table 5 shows the nutrient intake of the respondents as per their type of work (sedentary, moderate or heavy). The intake of energy was deficit in both working and non-working women ranging from 1.26 per cent among non-working to 6.02 per cent among moderate working women respondents. Similarly the intake of protein was deficit among all categories and the most among non-working women (-16%). Among non-working women respondents iron intake showed positive increase of 1.9 per cent and deficit of iron intake was found in all categories of working women respondents. Intake of fat showed increase per cent in all categories such as sedentary working women (+2.5%), moderate (+4.8%), heavy (+4.33%) and non-working women (+2.75%). The intake of calcium was heavily deficit among all categories of respondents such as sedentary working women (-33.92%), moderate (+-28.1%), heavy (-28.66%) and non working women (-28.56%).

Conclusion :

Women's nutrition has a significant positive effect as healthy women can fulfil the multiple roles of having

healthy children, income generation, ensuring the nutrition of family members etc. Sound knowledge about good nutrition, balanced diet can affect the health and nutritional status of the whole family. In big joint families the per capita consumption of food decreases for the women as a tradition women eat last and which many times were less quite less than requirements. Most of the time the women who take care the health and nutrition of the family ignores own, so awareness generation is needed to promote healthy and sound food habits among the women.

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