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Effect of various educational and socio-economic factors on the dietary pattern of women in Kashmir

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ABSTRACT

The present study is a cross- sectional study carried over a period of one year covering four areas of urban Srinagar with the aim to obtain empirical information about the dietary intake and physical activity pattern of urban adult women. A sample of 400 adult women was randomly selected from four different areas of district Srinagar. The main findings of the study revealed that as the income increased there was parallel increase in percentage of women with high BMI. Difference in BMI of women belonging to different SES was statistically significant.

Key Words : Education, Socio-economic, Dietary pattern, Kashmir, Adult women, BMI

INTRODUCTION

Nutritional Status refers to both types and amounts of nutrients available and the body's utilization of nutrients. Good nutritional status is necessary but not sufficient for optimal health. The nutritional status of an individual is the result of many interacting factors operating simultaneously on the individual in the physical, ecological and cultural setting of the community. Attempts to improve nutritional conditions cannot be made intelligently unless the factors other than the knowledge of nutrition which determines food choices are known and considered. The quantity of various foods consumed and the associated food practices or habits are a reflection of the economic conditions and the social, cultural and educational values of a community.

Dietary habits are among the oldest and most enriched aspects of any culture. Their formation begins in early childhood and is effected by variety of factors and all impinge on individual. By the time adulthood is reached food habits are apt to be fairly rigid and immutable. Food habits are the sum of the food choices of an individual, constituting his total diet. Eating behaviors develop from cultural, societal and psychological patterns. These patterns reflecting food habits that have been transmitted from preceding generations are the heritage of any ethnic group. They may be influenced by interactions with other groups, so that some

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intermingling of patterns is inevitable. Nutritional practices and patterns are developed by people's tendency to settle into fixed habits. Eventually, they characterize regional and national eating practices either poor or good. Food habits are generally classified as good when a person eats the kind and amounts of food needed for good nutrition. Poor food habits, including eating only what a person likes, regardless of individual nutrient requirement can result in a poor nutritional status. Food habits, good or bad, however, can be an extremely powerful force in determining what a person eats. The best way to be well-nourished throughout life is to develop food habits and attitudes that are conducive to the selection of a healthy diet. Food habits of a community furnish presumptive evidence of the nutritional status of its population. Women should not be considered solely with respect to their reproductive roles as mothers. Adequate nutrition is a 'human right' for all and the nutritional benefits to women's social and economic capabilities need to be viewed as goals. Careful systematic analysis of women's diet and nutritional status are rare. Data from small and infrequent studies of women's anthropometry. Iron Status and dietary intake suggest that they are at high nutritional risk.

Women play a central role in child care and food processing even when their economic roles require extensive time and physical energy (McGuire and Popkin, 1988). Poor health has repercussions not only for women but also on the families (Velkoff and Arjun, 1998). Thus women work twice as much as men equally at home as well as work-place. However it is being argued that while the women's additional work is helpful to increase the household income, it may not always lead to an improved diet due to change in priorities (Wande and Ottesen, 1992).

Socio-economic status of women:

The status of women can be broadly defined as the degree of socio-economic equality and freedom enjoyed by women. Women's participation on equal terms with men in domestic decision making, expression of their views freely and participation in community life makes them being recognized in the society.

Studies on status of women revealed that status of women was largely influenced by various factors like husband's education and occupation (Buric and Zeevic, 1967), the level of education (Lamouse, 1969), social setting (Rodman, 1972), the place of residence and age (Acharya and Bennett, 1983).

Vlassoff (1982) examined the status of rural Indian women and revealed that overall level of education was low with only five per cent of females having high school education as compared to 15 per cent of males. Further, it was found that over fifty per cent of females had received no education.

Objectives :

1) To study the dietary intake of adult women in Kashmir

2) To study effects of various educational and socio-economic factors on the dietary pattern and activity pattern of women in Kashmir.

METHODOLOGY

Selection of area and sample size:

A sample of 400 adult urban women starting from early adulthood to late adulthood i.e.

age groups *viz.*, 20-30, 30-40, 40-50 and 50-65 years. The sampling was done in the district Srinagar only.

For Srinagar district, cluster sampling technique has been used to select the areas. The urban area of Srinagar city was divided in four areas viz; Hazratbal, Hawal, Shivpora and Hyderpora covering almost all directions of Srinagar city. From each area of the selected locations, equal number of sample was taken *i.e.* 100 for each location. The respondents were majorly selected from households.

Tools used :

The tool used for collecting of data in the present study has been a questionnaire. After a thorough and detailed study of the problem and the related review of literature, a preliminary questionnaire was framed, which was pre-tested on 10 adult urban women in order to test its validity. After modifications, it was used finally for collection of data. Questionnaire was supplemented by an interview schedule to obtain the desired information.

Various methods for collecting different information was as under:

Socio-economic assessment :

Socio-economic status was collected for the measurement of socio economic class using Kuppuswamy's scale (2014). For socio economic status: education, occupation and income information was collected.

Questionnaire :

Women were approached during day time in their households usually from 10:00 A.M to 4:00 P.M except for working ladies who were approached either early in the morning or after 4:00 P.M. A standard pre-designed questionnaire was used for collecting the information, which was divided into six sections as follows:

Section A :

This section sought information of respondents, with regard to their name, residential address, age, marital status etc.

Section B :

This section collected information to assess the socio-economic status of the respondents as per Kuppuswamy's scale 2014.

Section C :

Height and weight of the sample was measured under this section.

BMI :

BMI was calculated directly from the observed measurements of weight and height. The formula used for calculation:

$$\text{BMI} = \frac{\text{Weight (Kg)}}{\text{Height}^{2}\text{(m)}}$$

Dietary assessment:

This section included information regarding the nutritional intake of the respondents. This was done by using 24-Hour recall method (Quantitative Assessment). The food intake during the last 24 hours was recorded in order to obtain information regarding the intake of calories, protein, fat and iron. Further diet survey was also conducted to obtain information regarding the consumption and non-consumption of various food items *i.e.* milk, vegetables and salad, respectively.

Data analysis :

Various statistical tools including mean, measures of dispersion, chi square, P-value, standard deviation etc. have been used to analyze the data, so that valid inferences could be drawn.

RESULTS AND DISCUSSION

Fig.1 reveals the age of respondents, 36% were between the age of 20-30 years, 14.8% were above 50 years, 30.5% were found in the age group of 30-40 years and 18.8% respondents fall in the age group of 40-50 years. The results reveal that the majority of the respondents fall in the age group of 20-30 years.

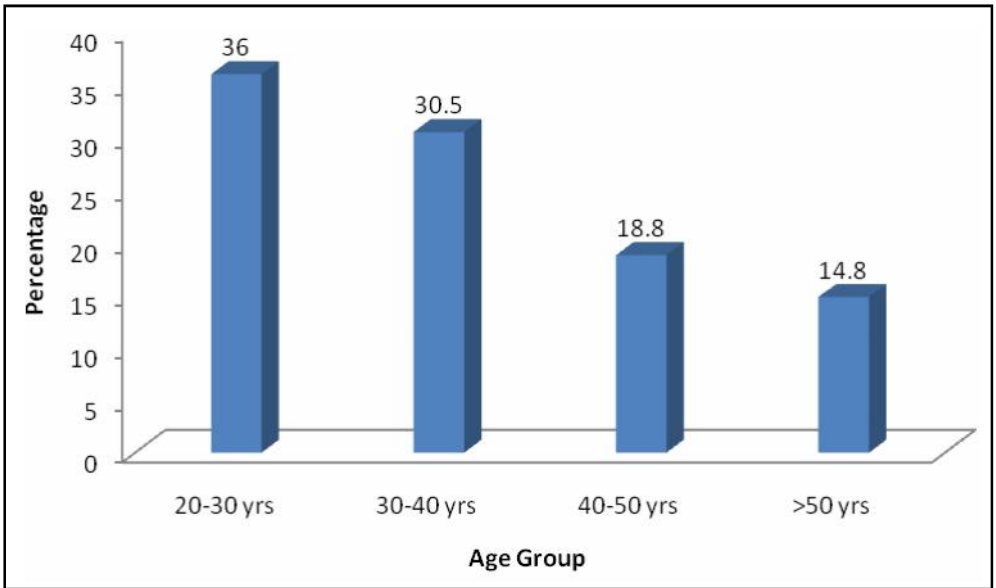

Fig. 1 : Age of the respondents

Fig. 2 represents socio economic class of the respondents. Majority of the respondents (48%) fall in the upper middle class followed by 31.3% respondents in the lower middle class. Only 4% of women belonged to lower class and 16.8% belonged to upper class. Thus it can be seen that majority of the women had better socio-economic status.

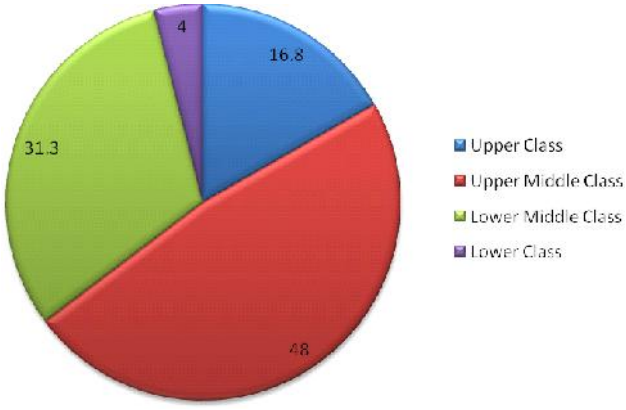

Fig. 2 : Socio-economic status of the respondents as per Kuppuswamy's scale 2014

Fig. 3 reveals that the BMI (Body Mass Index) of majority of the respondents (37.8%) fall under the Normal range. It was further seen that 29.8% were overweight, 14.8% obese and 17.8% of them were underweight.

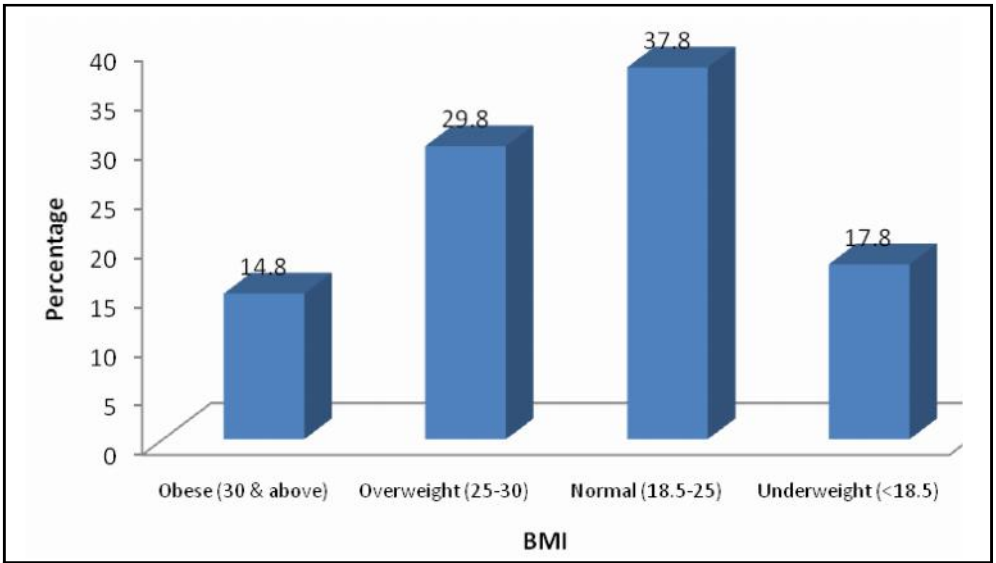

Fig. 3 : BMI

Table 1 depicts the BMI of the respondents with reference to the educational status. It was found that majority of obese respondents (38.9%) were intermediate or post high school pass outs followed by 28.81% who were graduates or postgraduates. Majority (62.9%) of the normal BMI respondents were graduates or postgraduates. Among overweight respondents, 46.2% were graduates or post graduates. It was further observed that majority (63.38%) of the underweights were graduates or postgraduates. None of the illiterate women

was found to be obese. However, all the professional or those with honors were found to be overweight.The tendency of being overweight and obese was observed across women with different educational backgrounds however more tendency was seen among less educated or highly educated women. Statistically also a highly significant association was found between educational status and BMI ($p<0.01$).

Table 1 : BMI with reference to educational status of the respondents

Educational status	BMI									
	Obese (30 and above)		Overweight (25-30)		Normal (18.5-25)		Underweight (<18.5)		Total	
	Count	%age	Count	%age	Count	%age	Count	%age	Count	%age
Illiterate	0	0.0%	4	3.36%	11	7.28%	6	8.45%	21	5.2%
Primary	0	0.0%	4	3.36%	8	5.30%	3	4.23%	15	3.8%
Middle	3	5.08%	0	0.0%	4	2.65%	0	0.0%	7	1.8%
High School	16	27.12%	19	15.97%	21	13.91%	14	19.72%	70	17.5%
Intermediate or Post High School Diploma	23	38.98%	17	14.29%	12	7.95%	3	4.23%	55	13.8%
Graduate or Postgraduate	17	28.81%	55	46.22%	95	62.91%	45	63.38%	212	53.0%
Profession or Honors	0	0.0%	20	16.81%	0	0.0%	0	0.0%	20	5.0%
Total	59	100.0%	119	100.0%	151	100.0%	71	100.0%	400	100.0%

$X^2 = 114.46$; p-value = 0.00*

*significant at 0.01 level

Table 2 depicts the BMI of the respondents with reference to their socio-economic status. Obesity was found mostly among the upper middle class (55.9%) followed by lower middle class (30.51%). Majority (45.38) of the overweight respondents belonged to upper middle class followed by 32.77% belonging to upper class. Approximately 85% of normal BMI respondents either belonged to upper middle class or lower middle class. It was further

Table 2 : BMI with reference to socio-economic status of the respondents

Socio-economic class	BMI									
	Obese (30 and above)		Overweight (25-30)		Normal (18.5-25)		Underweight (<18.5)		Total	
	Count	%age	Count	%age	Count	%age	Count	%age	Count	%age
Upper class	4	6.78%	39	32.77%	19	12.58%	5	7.04%	67	16.8%
Upper middle class	33	55.93%	54	45.38%	70	46.36%	35	49.30%	192	48.0%
Lower middle class	18	30.51%	26	21.85%	56	37.09%	25	35.21%	125	31.2%
Lower class	4	6.78%	0	0.0%	6	3.97%	6	8.45%	16	4.0%
Total	59	100.0%	119	100.0%	151	100.0%	71	100.0%	400	100.0%

$X^2 = 35.41$; p-value = 0.00*

*significant at 0.01 level

observed that most of the underweights mostly belonged to upper middle class (49.3%) or lower middle class (35.21%). Very few women belonging to upper class were underweight. The findings reveal that socio-economic status has an impact on the body composition of the women. Data is highly significant ($p<0.01$).

Table 3 depicts the protein intake with respect to BMI of the respondents. The protein intake among all BMI categories was more than recommended dietary allowances (RDA). The Mean protein intake was 62.7 grams/day.

Table 3 : Protein intake with respect to BMI of the respondents

BMI	N	Mean	Std. Dev.	%AD
Obese	59	63.509	5.8347	115.47
Overweight	119	62.882	5.4002	114.33
Normal	151	60.838	5.6581	110.61
Underweight	71	63.651	5.1992	115.73

RDA value 55gm for Sedentary, Moderate and Heavy
Source: ICMR 2010

Table 4 reveals fat intake with respect to BMI of the respondents. It was found that the fat intake among all BMI categories was more than the recommended dietary allowances. The mean intake of fat was found to be 35.3 grams/day. It was further observed that obese respondents had highest percentage adequacy.

Table 4 : Fat intake with respect to BMI of the respondents

BMI	N	Mean	Std. Dev.	%AD
Obese	59	36.810	5.7136	184.05
Overweight	119	35.222	3.5310	176.11
Normal	151	33.798	3.6139	165.99
Underweight	71	35.184	3.8721	175.92

RDA value Sedentary=20g, Moderate=25g and Heavy=30g
Source: ICMR 2010

Table 5 depicts calcium intake with respect to BMI of the respondents. It was found that the calcium intake among all BMI categories was more than recommended dietary allowances. The mean calcium intake was found to be 882 mg/day showing high deviation when compared with RDA.

Table 5 : Calcium intake with respect to BMI of the respondents

BMI	N	Mean	Std. Dev.	%AD
Obese	59	878.93	157.120	146.49
Overweight	119	895.95	161.317	149.33
Normal	151	844.66	143.972	140.78
Underweight	71	912.42	166.787	152.07

RDA value 600mgl for Sedentary, Moderate and Heavy
Source: ICMR 2010

Table 6 interprets iron intake with respect to BMI of the respondents. It was found that the iron intake among all BMI categories was less than recommended dietary allowances. The mean iron intake was found to be 13.60 mg/day showing deviation when compared with RDA.

Table 6 : Iron intake with respect to BMI of the respondents

BMI	N	Mean	Std. Dev.	%AD
Obese	59	13.866	1.4123	66.03
Overweight	119	13.587	1.0415	64.70
Normal	151	13.324	1.1171	63.45
Underweight	71	13.624	1.1748	64.88

RDA value 21mgl for Sedentary, Moderate and Heavy
Source: ICMR 2010

Table 7 depicts calorie intake with respect to BMI of the respondents. It was found that the calorie intake among obese respondents was 1982.71 kcal/day and 1899.18 kcal/day for overweight respondents. However, the energy intake for normal and underweight women was less than the recommended allowances.

Table 7 : Energy intake of respondents

BMI	N	Mean	Std. Dev.
Obese	59	1982.71	384.266
Overweight	119	1899.18	195.015
Normal	151	1833.19	264.052
Underweight	71	1753.92	204.710

RDA value Sedentary=1900Kcal, Moderate=2230Kcal and Heavy=2850Kcal
Source: ICMR 2010

Conclusion :

It was seen that more than half of the women have respectable income and only small percentage of women belonged to low income. This implies majority of women in Srinagar belong to upper and upper middle class and socio-economic status of Kashmiri women of Srinagar is going through a good progress and reformation, as the socio-economic status has been improving a lot.

Although some indices of nutritional status reflect that women in Srinagar take more than required protein across all the age groups irrespective of the BMI status. The maximum protein intake can be attributed to taking combination of meat, vegetables and pulses at a time resulting in excess protein levels among women.The fat consumption among women was also more than the normal and fat consumption was found more in case of overweight and obese women because of taking fatty meat, full fat milk instead of skimmed milk and excessive intake of oil. The mean calcium intake of women in Srinagar was significantly high as compared to the recommended dietary allowances. The reason has been frequent intake of milk with corn flakes, cheese and vegetables like knolkhol greens, lotus root and local tandoori roti. As far as iron intake is concerned, Srinagar women were deficient of iron irrespective of their BMI status. The iron deficiency can be attributed to less availability of

fruits and vegetables which are rich in iron and low consumption of organ meat. The highest intake of the nutrients viz; protein, calcium, iron and fat was found in the upper class whereas the lowest intake was found in the lower class. The nutrient intake reflects a decreasing trend from upper to lower SES. While considering the mean intake and mean deviation per person area wise in Srinagar, it can be easily concluded that women in the surveyed areas do not follow world standards for their nutritional needs, which is a cause of serious concern from research point of view.

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