

# Nutritional status through Body Mass Index (BMI) among single living female in Bhopal

POONAM MUKTAWAT

This paper deals with the assessment of nutritional status through body mass index in single living female in Bhopal. The data were collected with the help of "Questionnaire cum Interview Technique." The questionnaire having all relevant information was pretested and predesigned the data was collected. The study was conducted on 178 single living female (Widow, Divorcee, Unmarried and Separated) aged 25-45 years were purposely selected from eight areas of the city. Anthropometry showed heights and weight close to the mean height and weight values of Indian women. Body mass index was indicating the absence of chronic energy deficiency (CED). Screening for hemoglobin levels showed single living female suffering from anemia. Diet survey carried out by the 24 hours recall method revealed adequate and low intake of nutrients. The inferences were drawn with the help of suitable statistical tools.

**Key Words :** Nutritional status, BMI, Hemoglobin, Nutrient intake, Single living female

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## INTRODUCTION

There are so many single living persons in our society due to their own cause. Single hood of any person create positive and negative effects on his life style. Single hood character of female in urban society is comparatively more than rural, due to their economic self dependency and higher educational status. Everyone is free to live alone without any interference. The behaviour of society to the single living persons is not up to the mark, because society does not like the freeness and life style of single living persons. As a result of this the relationship of single living persons and society becomes bitter. Kumari (2001) found in her study, that 30 per cent of the population was currently married. Widows constituted 65 per cent of the total women studied and remarried/divorced/never married women

were very few and constituted about 5 per cent. Widowhood is disproportionately high among females compared to the male. According to the 1991 census, there were 33 million widows in India. Sawhney and Singh (2007) observed that unmarried women are happily living life and she is confident and career minded. she's sensible balance her work, friends, family and the books she's also sensitive kisses the bruises, hugs away the fears, listens intently and gives good advice. According to Park (2005) the nutritional status of an individual is often the result of many interrelated factors. It is influenced by the adequacy of food intake both in terms of quantity and quality and also by the physical health of the individual. The nutritional status of a community is the sum of the nutritional status of the individuals who form the community. Balanced diets are formulated by the ICMR in India. According to Swaminathan(2008). The present study was formulated to accomplish following objects:

### AUTHOR FOR CORRESPONDENCE

POONAM MUKTAWAT, Department of Home Science, Sri R.D.A.K. (P.G.)  
College, HATHRAS (U.P.) INDIA

- To assess anthropometric measurement of single living female (To calculate their BMI).
- To assess the hemoglobin by sahil's method
- To assess the dietary pattern of single living female by using 24 Hours recall method, and find out the nutrient intake of single living female.

## METHODOLOGY

The study was carried out in Bhopal city. The data were collected with the help of questionnaire cum interview technique. A pretested and predesigned questionnaire having all relevant information were collected from 178 single living female aged 25-45 years. These respondents were selected from 8 representative areas of Bhopal town. Purposive multistage stratified sampling technique was employed for selection of single living female respondents. The present study highlighted that the single living female were intake nutrient in different age group and compared with recommended dietary allowance. Anthropometric measurements were taken by using chattillon weighing scale, Anthropometric rod and fiber glass tape by standard techniques (Agarwal *et al.*, 1992). Body mass index was calculated using height, weight data and females were classified into different degrees of nutritional status using the cutoff levels suggested for Asian women (WHO, 2000). Dietary assessment was done using frequency of food consumption and dietary intake survey was conducted for three days in a week, two week days and one weekend day. The data was collected in the combination of 24 hours recall method, type of preparation, actual ingredients and quantities used were recorded. The data collected on the food converted into raw foods (ICMR, 1996). The clinical signs were observed and noted as per the guidelines provided by Jelliffe (1966). Hemoglobin was assessed by using sahil's method. The collected data were analyzed using various statistical techniques.

## OBSERVATIONS AND ASSESSMENT

The findings obtained from the present study have been presented and discussed under the following sub-heads:

### General information regarding the respondents:

Table 1 shows the distribution of single living female respondents according to their age group and marital status. Out of total 178 single living female respondents, 38.76 per cent female were unmarried, 25.29 per cent were widow, 34.83 per cent were divorcee and only 1.12 per cent was separated of all age group. Out of 178 female respondents, 3.37 per cent belonged to age group 25-30 years, 25.84 per cent belonged to 30-35 years age group, 28.09 per cent belonged to 35-40 years age group and 42.70 per cent belonged to 40-45 years age group including unmarried, widow, and divorcee and separated marital status (Table 1). Among total female respondents of unmarried category, 1.44 per cent was of 25-30 years age group, 37.68 per cent were of 30-35 years age group, 30.44 per cent were of 35-40 years age group and 30.44 per cent female were of 40-45 years age group. Out of total 45 widow female, 8.89 per cent, 11.11 per cent and 80.00 per cent were corresponding to 30-35, 35-40 and 40-45 years age group, respectively. In divorcee marital status of female, 8.06 per cent were of 25-30 years age group, 25.81 per cent were of 30-35, 38.71 per cent were of 35-40 and 27.42 per cent were of 40-45 years age group. Only two female respondents of separated category were noted.

### Anthropometric measurement :

Table 2 shows the distribution of single living female according to their age and average height and corresponding average weight. A single living female respondent, the average height was noted as 156.33 cm. The majority of female respondents in the age group of 40-45 years had an average height 155.97 cm with

**Table 1 : Age group wise status and marital category of single living female**

Age group of female (years)	Unmarried		Widow		Divorcee		Separated		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%
25-30	1	1.44	nil	nil	5	8.06	nil	nil	6	3.37
30-35	26	37.68	4	8.89	16	25.81	nil	nil	46	25.84
35-40	21	30.44	5	11.11	24	38.71	nil	nil	50	28.09
40-45	21	30.44	36	80.00	17	27.42	2	100.00	76	42.70
Total	69	38.76	45	25.29	62	34.83	2	1.12	178	100.00

average weight 54.44kg. The average weight of 178 female respondents was noted as 54.52 kg and average height 156.33cm.

Table 3 indicates the age wise BMI of all 178 single living female respondents. According WHO the various categories of BMI are as follows: underweight, normal, overweight, obese I. The BMI less than 18.5 is considered as *underweight category* while *normal category* of BMI is within 18.5-24.9 BMI range. 25-29.9 BMI range is known as *overweight category*. The BMI range 30-34.9 is considered as obese I. In underweight category of BMI only 3.13 per cent single living female respondents were noted in age group 25-30 years and 34.37 per cent females of age group 30-35 years were of noted in underweight category of BMI. In age group 35- 40 years 31.25 per cent females were noted in underweight category of BMI, In 40-45 years age group 31.25 per cent females respondents were noted in underweight category of BMI. In normal category of BMI 4.20 per cent single living females were noted in age group of 25-30 years 25.21 per cent female of 30-35 years age group were of normal BMI in age group 35-40 years, 28.57 per cent females were noted for normal BMI in 40-45 years age group 42.02 per cent females respondents had normal BMI. Out of 22 single living female respondents of overweight

category of BMI of all groups, 9.90 per cent female respondents belonged to 30-35 years age group while 27.27 per cent females were related to 35-40 year age group in this category of BMI. In age group 40-45 years, 63.63 per cent female respondents were noted in over weight category. In obese I category of BMI only 60.00 per cent females of age group 30-35 years and 40.00 per cent female of age group 40-45 years were found. The results further revealed that mean BMI of single living female respondents was 22.32. In relation to the age wise BMI of single living female respondents, the results indicated that majority of respondents were of normal BMI grade. Higher percentage of female respondents in normal BMI grade showed that working class females were more careful about increase of their weight. In under weight category of BMI, the higher number of female respondents were more careful to maintain her figure and to control the weight as well as to achieve this they preferred dieting. More than 50.00 per cent females in over weight category of BMI were noted in age group 40-45 years. This indicates that with the increase of age the weight of respondents generally increased.

Table 4 shows distribution of all single living female respondents according to their haemoglobin level. Out of 178 single living female respondents, maximum

**Table 2 : Age group wise height and weight for single living female**

Age group	No	Av. Ht. (Cm)	Av. Wt. (kg)
25-30	6	156.83	53.83
30-35	46	156.76	53.50
35-40	50	156.46	53.61
40-45	76	155.97	54.44
Total	178		
Mean		156.33	54.52
SD		4.97	7.77

**Table 3 : Age group wise BMI of single living male and female**

BMI range category	Age group(years)								Total
	25-30		30-35		35-40		40-45		
	No	%	No	%	No	%	No	%	
<18.5	1	3.13	11	34.37	10	31.25	10	31.25	32
Under weight									
18.5-24.9	5	4.20	30	25.21	34	28.57	50	42.02	119
Normal									
25-29.9	nil	nil	2	9.09	6	27.27	14	63.63	22
Over weight									
30-34.9	nil	nil	3	60.00	nil	nil	2	40.00	5
Obese I									
	Mean BMI		22.32		SD		2.99		178

**Table 4 : Haemoglobin level among single living female and comparison with standard**

Category	Standard Hb Range gm/dl	No	%
Normal	12.0-16.0	18	10.11
Mild	9.5-11.5	101	56.74
Moderate	8.0-9.5	50	28.09
Severe	< 8	9	5.06
Mean			10.04
SD			1.26

Source: WHO, Worldwide prevalence of anemia, 1993-2005

**Table 5 : Average mean nutrient intake of single living female and comparison with RDA by I C M R**

Nutrients intake	Female (n=178)		RDA	Excess /Deficit	% of Excess /Deficit
	Mean	SD	Mean		
Energy , Kcal	1850.87	70.93	1875	-24.13	-1.28
Protein, g.	45.13	3.41	50	-4.87	-9.74
Calcium , g.	893.92	233.45	400	+493.92	+123.48
Vitamin B <sub>1</sub> . mg.	1.07	0.12	0.9	+0.17	+18.89
Iron .mg.	20.52	2.55	30	-9.48	-31.60
Fat .g.	17.65	2.38	20	-2.35	-11.75
Carbohydrate. g.	422.29	117.52	375	+47.29	+12.60

Source: RDA by ICMR. 2004

females 56.74 per cent belonged to mild Hb range between 9.5-13.0, 5.06 per cent females belonged to sever Hb range <8, 28.09 per cent female respondents had moderate Hb range 8.0-9.5, 10.11 per cent females had normal Hb range 12.0-16.0 g/dL. Mean haemoglobin of single living female (10.04 g/dL). The respondents of this level were facing anemia. This range of hemoglobin belonged to the female respondents. The cause for this may be the carelessness for nutritious food and some other problems of female respondents

Table 5 indicates the comparison between nutrient intakes by single living female and recommended dietary allowances. Nutrient intake of energy, protein, and iron, fat were found to be less among single living female as compared to RDA by ICMR. While nutrient intake of calcium, vitamin B<sub>1</sub>, carbohydrate were found to be more among single living female as compared to RDA by ICMR. Maximum excess of nutrient intake was found in calcium and maximum deficient was found in nutrient intake of energy among single living female. Regarding average nutrients intake in different age group by single living female the results indicated that intake of energy, iron, proteins, nutrients and of all age groups were noted lesser than RDA. Intake of calcium was higher than RDA by single living female of all age groups.

### Conclusion :

The present study was restricted only to the single living females in Bhopal. Nutrient intake of energy, protein, fat, iron, vitamin B<sub>1</sub> among male and female respondents were found to be lesser as compared to RDA. Only calcium was found to be more as compared to RDA, but some respondents maintain a good body mass index. Some Respondents have also underweight and overweight category. The mean BMI of the respondents was normal. This data indicates that there is no chronic energy malnutrition among respondents. Majority of the respondents have mild Hb level and severe Hb level because they did not take nutritious food.

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