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Research Paper

A study on socio-economic status of different weight status women

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■ **ABSTRACT :** Socio-economic status is a particularly important to influence on obesity for women. The present work was conducted with the objectives to study on socio-economic status of different weight status women for which 350 women of reproductive age (15-49 yrs), were selected from Banaras Hindu University, Varanasi. Body Mass Index was calculated with height and weight measurements. The weight was taken by using the electronic weighing machine and height measured by measuring tape. Findings of the study revealed that 96.0 per cent women of all BMI groups were from Hindu religion and majority of women of all categories of BMI (72.86%) belonged to general caste. Maximum women of all categories of BMI belonged to nuclear family (77.43%), medium family size (67.14%) and non-working group (88.0%). The study showed that possibility of obesity increased in higher socio- economic status and higher income group women.

■ **KEY WORDS :** Socio-economic status, Educational status, Per capita monthly income

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Obesity is a growing health problem in many countries (Mohammad Ali and Lindström, 2006). Recently conducted National Family Health Survey (NFHS-3) has shown the problem of increasing proportion of overweight and obese, especially among women (Solanki *et al.,* 2008).The association of obesity with the 3Ds (disease, disability and death) underscores its importance as public health problem. Diseases associated with obesity are hypertension, Type II diabetes, heart disease, gallstones and even some forms of cancer to name a few. These comorbidities result in significant disability and early death in obese individuals. Reduced physical activity and excess energy intake are strongly linked to weight gain (Lombard and Teede, 2009).

Socio-economic status is a particularly important influence on obesity for women. A negative correlation has been found to exist between socio-economic status and obesity, and longitudinal studies have shown that for women, growing up with lower socio-economic status is a powerful risk factor for obesity (Kelleher *et al.*, 2003). Agrawal (2002) found that education of the women plays a significant role in increasing obesity. As the education of women increases obesity is also likely to increase. The present study was undertaken with keeping in view the following objective:

To study the socio-economic status of different weight status women.

■ RESEARCH METHODS

The study was carried out in Banaras Hindu University (BHU), Varanasi on 350 women (15-49 years). The residents of BHU campus are the employee of various categories and they belong to different socio-economic groups. Residential area is divided into 12 colonies in BHU. In each colony number of quarters is not same. To select the samples from each colony, stratified random sampling (proportional allocation) technique was considered. Since, the women characteristics are heterogeneous between colonies, only eligible population (15-49 years of women, excluding pregnant women) of these colonies were taken as sample. The subjects were requested to make an appointment at their house and a pretested schedule was used to collect the information. All body measurements *i.e.* weight (kg), height (cm), skinfold thickness (mm) and waist hip ratio (cm) were taken by using standard techniques (Jelliffe, 1966). Body Mass Index measurement was used for assessing the weight status of women. Body

Mass Index was calculated with height and weight measurements. The weight was taken by using the electronic weighing machine and height measured by measuring tape. Chi-square test were used to analyze the collected data.

■ RESEARCH FINDINGS AND DISCUSSION

Findings presented in Table1 depict that maximum women of all BMI groups (96.0%) belonged to Hindu religion and majority of women of all categories of BMI (72.86%) belonged to general caste. Maximum women of all categories of BMI belonged to nuclear family (77.43%), medium family size (67.14%) and non-working group (88.0%).

Findings presented in Table 2 show that majority of women of all BMI groups (46.86%) were graduate and post graduate. But maximum illiterate (12.24%) and Primary School educated (8.16%) women were overweight and majority of Middle School (12.07%) and High School (25.86%) educated women were underweight, whereas mostly intermediate women (34.70%) were overweight and graduate or post graduate (54.72%) and professional (10.0%) educated women were grade I and grade II obese, respectively. Agrawal (2002) also observed overweight and obesity prevalence in educated women. Kuczmarski (1992) and Laurier *et al.* (1992) observed that level of education appears to be inversely associated with body weight in industrialized countries. Surveys in France, the United Kingdom and USA showed that the proportion of obese men and women was higher among those having a lower educational level. According to Hulshof *et al.*

Table 1: Distribution of women according to socio-economic variables

Sr. No.		Underweight		Normal weight		Over weight		Obese grade I		Obese grade II		Total	
		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Religion													
1.	Hindu	57	98.28	112	95.73	45	91.84	102	96.22	20	100.00	336	96.00
2.	Muslim	1	1.72	1	0.85	2	4.08	2	1.89	-	-	6	1.71
3.	Christian	-	-	4	3.42	2	4.08	2	1.89	-	-	8	2.29
	Total	58	100	117	100	49	100	106	100	20	100	350	100
	S.S.					χ^2=5.827		df=8	P=0.667				
Caste													
1·	General	37	63.80	79	67.52	33	67.35	88	83.02	18	90.00	255	72.86
2·	SC/ST	15	25.86	21	17.95	14	28.57	11	10.38	2	10.00	63	18.00
3·	OBC	6	10.34	17	14.53	2	4.08	7	6.60	-	-	32	9.14
	Total	58	100	117	100	49	100	106	100	20	100	350	100
	S.S.					χ^2=20.546		df=8	P<0.01				
Family type													
1·	Nuclear	43	74.14	93	79.49	39	79.59	81	76.42	15	75.00	271	77.43
2·	Joint	15	25.86	24	20.51	10	20.41	25	23.58	5	25.00	79	22.57
	Total	58	100	117	100	49	100	106	100	20	100	350	100
	S.S.					χ^2=0.904		df=4	P=0.924				
Occupation													
1·	Working	2	3.45	8	6.84	9	18.37	22	20.75	1	5.00	42	12.00
2·	Non working	56	96.55	109	93.16	40	81.63	84	79.25	19	95.00	308	88.00
	Total	58	100	117	100	49	100	106	100	20	100	350	100
	S.S.					χ^2=17.472		df=4	P<0.01				
Family size													
1·	Small (1-3)	5	8.62	9	7.69	7	14.29	16	15.10	2	10.00	39	11.14
2·	Medium (4-6)	40	68.96	75	64.10	28	57.14	75	70.75	17	85.00	235	67.14
3.	Large (7-9)	11	18.97	33	28.21	14	28.57	14	13.21	1	5.00	73	20.86
4.	Very large (above 9 members)	2	3.45	-	-	-	-	1	0.94	-	-	3	0.86
	Total	58	100	117	100	49	100	106	100	20	100	350	100
	S.S.					χ^2=21.658		df=12	P<0.05				

(1991), the observed inverse relationship between education and body weight may be partly attributed to the fact that individuals of higher educational level are more likely to follow dietary recommendations and adopt other risk avoidance behaviours than those of low educational attainment. It was found in this table that age factor was primarily responsible for overweight and obesity in illiterate and Primary School educated and Intermediate, graduate and post graduate and professional educated women because majority of illiterate, primary school, intermediate, graduate and post graduate and professional educated women were found in 25-49 age group and maximum Middle and High School educated women were found in15-19 age group. And it was found in this study that majority of 15-19 years women were underweight and 25-49 age group women were overweight and obese.

Maximum underweight women (37.93%) belonged to 1000-3000 per capita monthly income whereas majority of normal weight (37.61%), overweight (42.86%), obese grade I (33.02%) and obese grade II (70.0%) women belonged to 3001-5000 per capita monthly income (Table 3). But, maximum women of <1000, 1000-3000 and 5001-7000 per capita monthly income belonged to underweight, 3001-5000 per capita monthly income women belonged to obese grade II and majority of 7001-9000 and above 9000 per capita monthly income women were observed grade I obese (18.87% and 11.32%, respectively). According to WHO (2000), as per capita income increases the nature of the diet in traditional societies tends to change in a pervasive and well documented manner. In particular, intake

Table 2: Distribution of women according to educational status

Educational status	Under weight		Normal weight		Over weight		Obese grade I		Obese grade II		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Illiterate	-	-	4	3.42	6	12.24	7	6.60	1	5.00	18	5.14
Primary School	4	6.90	1	0.85	4	8.16	6	5.66	-	-	15	4.29
Middle School	7	12.07	10	8.55	-	-	2	1.89	-	-	19	5.43
High School	15	25.86	11	9.40	2	4.08	6	5.66	3	15.00	37	10.57
Intermediate	14	24.14	25	21.37	17	34.70	20	18.87	4	20.00	80	22.86
Graduate or post graduate	18	31.03	60	51.28	18	36.74	58	54.72	10	50.00	164	46.86
Profession	-	-	6	5.13	2	4.08	7	6.60	2	10.00	17	4.85
Total	58	100	117	100	49	100	106	100	20	100	350	100
S.S.					χ^2=61.53 df=24 P<0.01							

Table 3: Distribution of women according to per capita monthly income

Per capita monthly income (Rs.)	Under weight		Normal weight		Over weight		Obese grade I		Obese grade II		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
<1000	6	10.34	4	3.42	2	4.08	2	1.89	-	-	14	4.00
1000-3000	22	37.93	33	28.21	13	26.53	24	22.64	-	-	92	26.29
3001-5000	12	20.70	44	37.61	21	42.86	35	33.02	14	70.00	126	36.00
5001-7000	10	17.24	17	14.53	8	16.33	13	12.26	2	10.00	50	14.29
7001-9000	3	5.17	12	10.25	-	-	20	18.87	2	10.00	37	10.57
>9000	5	8.62	7	5.98	5	10.20	12	11.32	2	10.00	31	8.85
Total	58	100	117	100	49	100	106	100	20	100	350	100
S.S.					χ^2=44.767 df=20 P<0.01							

Table 4: Distribution of women according to socio economic status

Socio-economic status	Under weight		Normal weight		Over weight		Obese grade I		Obese grade II		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Lower	29	50.0	36	30.77	16	32.65	23	21.70	3	15.00	107	30.57
Middle	23	39.66	60	51.28	21	42.86	44	41.51	12	60.00	160	45.71
High	6	10.34	21	17.95	12	24.49	39	36.79	5	25.00	83	23.72
Total	58	100	117	100	49	100	106	100	20	100	350	100
S.S.					χ^2=27.881 df=8 P<0.01							

of animal fat and protein increases, those of vegetable fat and protein decreases, those of total and particularly complex carbohydrates also decreases and those of sugar increases.

But maximum 3001-5000 per capita monthly income women were found obese, it may be possible that maximum women of this income groups were married and maximum married women were found obese in this study.

It was found from in Table 4 that maximum underweight women (50%) belonged to lower socio-economic status whereas majority of normal weight (51.28%), overweight (42.86%), obese grade I (41.51%) and obese grade II (60.0%) women belonged to middle socio-economic status. Agrawal (2002) also observed in India that women from lower socio-economic groups are also significantly more likely to have a low BMI.

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