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Prevalence of Obesity Among Females Above 18 Years of Block Hazratbal, Srinagar: A Cross Sectional Study

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Abstract

The study was done with the objective to determine the magnitude of obesity in the women above 18 years in block Hazratbal. It was a community based cross sectional descriptive study done over a period of one year from July 2010 – June 2011.10% of the villages were selected randomly from four zones .All the house hold of selected villages were surveyed .Further, all the non pregnant females older than 18 years were subjected to height and weight measurements after taking informed consent .The sample size came out to be 2267 females. The BMI (Body Mass Index) was calculated as per "WHO" classification. A comprehensive questionnaire was used to record demographic characteristics. Categorical data was summarized in the form of percentages and continuous data in the form of mean and standard deviation. Chi square test was used for evaluating statistical significance and p value <0.05 was considered significant. The overall prevalence of obesity was 9.4%.Maximum prevalence of obesity was observed in 51-60 years of age group.It was more in urban(11.3 %) area. Maximum percentage was found among widows (13.3%).Retired group among occupation had preponderant obesity (25%).Females in joint families were significantly obese(11.2%).Obesity was more in females belonging to socioeconomic class1(15.2%) and class 2(12.0%).

Keywords: *Obesity, Body Mass Index,Cross Sectional study.*

Introduction

Obesity is a condition with excess fat deposition which impairs health..It was introduced as a disease in the international classification of diseases (ICD) about 50 years and it has exploded into pandemic proportions in the last two decades. Obesity in adults is defined as a Body Mass Index(BMI) ≥30kgm2[(3)]. It imposes an economic burden on society through increased medical costs to treat the disease associated with it (direct cost), lost productivity due to absenteeism and premature death (indirect cost) and intangible cost in terms of missed opportunities, psychological problems and poor quality of life (QOL). It causes serious medical complications that impair quality of life, reduces life expectancy and lead to increased morbidity and premature death [(9)].As of 2005, the WHO estimates that at

least 400 million adults (9.8%) are obese, with higher rates among women than men [8].

Studies have shown that Obesity is more prevalent in females than in males, the reason being that women tend to gain greatest amount of weight during their child bearing age. Moreover females are generally involved in in-house activities like house hold chores, watching TV, which are low energy consuming than strenuous, outdoor calorie burning activities in which men are generally involved.

Since studies on obesity among females had not been conducted in block Hazratbal so far,this study was conducted with the objective to determine the magnitude of obesity in the women above 18 years in block Hazratbal.The results of this study will provide a baseline data for the study area and will help in planning prevention and control programmes in the future.

It was a community based cross sectional descriptive study in block Hazratbal over a period of one year from July 2010 – June 2011. 10% of the villages were selected randomly from each of four zone. All the house hold of selected villages were surveyed . All the non pregnant females older than 18 years were subjected to height and weight measurements after taking informed consent .The sample size came out to be 2267 females.

For anthropometry, to determine the body weight of an individual a weighing machine (bathroom scale) was placed on a firm surface and recalibrated on frequent intervals. Standardization was done with standard weights. In order to determine the actual weight each person was asked to wear light clothes and stand bare feet on the weighing machine and the weight was recorded to the nearest 0.5kg. A Stadia rod was employed to determine the exact height. The subjects were asked to stand with their Scapula, buttocks and heels resting against a wall. The neck was held in a natural non stretched position. The heels were touching each other and the head held straight with the inferior orbital border in the same horizontal place as the external auditory meatus (Frankfort's Plane) and was recorded to the nearest centimeters.

The BMI (Body Mass Index) was calculated by weight in (kg) divided by square of body height in meters as per "WHO" classification.. (3)

Subsequently, a comprehensive questionnaire was used to record their detail information such as:- name, address, age, marital status, educational qualifications, occupation, type of family (nuclear/joint), the size of the family, per capita income. Categorical data was summarized in the form of percentages and continuous data was summarized in the form of mean and standard deviation. Chi square test was used for evaluating statistical significance and p value <0.05 was considered significant.

Results

Majority (36.9%) of the study population belonged to age group of $\leq$ 30 years and only 2.2% of the population was > 70 years of age . Majority (70.6%) of the study population was married. Overall, there was a preponderance of illiterate females (72.7%). The majority of the females were housewives (76.0) Approximately

57% of females were living in joint families . Almost half (50.8%) of the population were from rural area. Majority of the studied population belonged to socioeconomic class IV (28%), only 7.2% belonged to class I according to modified B.J Prasad's scale for 2010.(84)

Table 1: Anthropometric Characteristics of the Studied Population

Height	mean ± SD (M)	1.6±0.1(1.32,1.79)	
Weight	mean ± SD (kg)	58.4 ±9.8(39,120)	
Body Mass Index	mean ± SD (kg/m2)	24.2±4.7(17.3,47.6)	
		n	%
Body Mass Index	Lean	229	10.1
	Normal	1254	55.3
	Overweight	572	25.2
	Obese	212	9.4
Total		2267	100

Out of 2267 females studied, 212 (9.4%) were obese (BMI ≥30 Kg/m^2. The mean height was 1.6m and the mean weight was 58.4. Mean BMI was 24.2.

Table2: Relationship of residence with obesity

	Obese		Non Obese		Total		
Dwelling	n	%	n	%	n	%	p value*
Urban	126	11.3	989	88.7	1115	49.2	0.002 (Sig)
Rural	86	7.5	1066	92.5	1152	50.8	
Total	212	9.4	2055	90.6	2267	100.0	

*Chi-square test

Obesity was observed more in urban population (11.3%) as compared to rural population (7.5%) and the difference was significant.(p value <0.05).

Table 3: Prevalence of obesity among different age groups.

Age (yr)	Obese		Non Obese		Total		P* value
	n	%	n	%	n	%	
≤ 30	32	3.8	805	96.2	837	36.9	<0.001 (Sig)
31 to 40	46	7.3	580	92.7	626	27.6	
41 to 50	57	14.9	325	85.1	382	16.9	
51 to 60	48	21.3	177	78.7	225	9.9	
61 to 70	26	17.7	121	82.3	147	6.5	
> 70	3	6.0	47	94.0	50	2.2	
Total	212	9.4	2055	90.6	2267	100.0	

*chi-square test.

Prevalence of obesity increased with advancing age upto the age group of 51-60 years; thereafter it decreased. Age was found to be significantly related to obesity (p<0.001). Prevalence of Obesity was observed highest in widows (13.3%) and lowest in unmarried females (3.0%) and it was statistically significant.(0.001)

Prevalance was highest in joint families (11.2%) as compared to nuclear families(8.0%).There was no significant association between obesity and educational status of females.

Table 4: Prevalence of obesity according to Occupation

Occupation	Obese		Non Obese		Total		P* value
	n	%	n	%	n	%	
Housewife	188	10.9	1534	89.1	1722	76.0	0.001 (Sig)
Government Employee	7	15.9	37	84.1	44	1.9	
Student	8	5.0	151	95.0	159	7.0	
Retired	2	25.0	6	75.0	8	0.4	
Household	7	2.1	327	97.9	334	14.7	
Total	212	9.4	2055	90.6	2267	100.0	

*Chi-square test

Prevalence of obesity was observed more in retired females (25.0), and less in unmarried household workers (2.1%)

Table 5: Prevalence of obesity in different Socioeconomic classes

SES (Income Scale)	Obese		Non Obese		Total		P* value
	n	%	n	%	n	%	
Class I(>3288)	25	15.2	139	84.8	164	7.2	0.047 (Sig)
Class II(1644-3287)	64	12.0	469	88.0	533	23.5	
Class III(986-1643)	38	6.1	581	93.9	619	27.3	
Class IV(493-985)	51	8.0	583	92.0	634	28.0	
Class V(492 and less)	34	10.7	283	89.3	317	14.0	
Total	212	9.4	2055	90.6	2267	100.0	

* Chi-sqaure test

The prevalence of obesity was found to be highest in females belonging to Class I (15.2%), followed by Class II (12.0%). The prevalence was lowest in females belonging to Class III (6.1%).

Discussion

Present study revealed a prevalence of 9.4% .A similar study conducted by Grag C, Khan SA, Ansari SH, Garg M in February 2010 titled "prevalence of obesity in Indian women" obser-ved that the prevalence of obesity among Indian women has elevated from 10.6% to 12.6% (39).

Further our study has reveled that the prevalence of obesity increased with age and it was found to be highest between the 51-60 age group. Beyond 60 years of age its prevalence was found to be decreasing. Study conducted by Sherina M Sidik et,al (42) showed that there is an increase in the prevalence of obesity as the age increases. Decrease in the prevalence of obesity beyond 60 years could be because of the reduced life expectancy (5).J S Al-Malki sh et,al (46) conducted a study where they found in females that there was a significant positive correlation between BMI and age of each subject. Marital status was also found to have an impact on the prevalence of obesity. It was found more in widows (13.3%) followed by married females (10.9%) and lowest in unmarried females (3%). The Study conducted by Neetu Gupta (43) has also observed that loneliness and divorced or widowed status were the strong predictors of obesity.

Our study observed significant association of obesity with occupation. Prevalence of obesity was observed more in retired persons (25%).Studies done by Astrid CJ Nooyens et al also reveal that the retirement was associated with an increase in waist circumference[(99)]

In the present study obesity was observed more in females living in urban area (11.3%) as compared to females living in rural areas (7.5%). Neetu Gupta et al, in" prevalence of obesity in Indian

women (2009) [43]„ observed the increased prevalence of obesity among females living in urban compared to rural dwellers. Yadav K, Krishnan A [44] in their study observed that In Northern India obesity was most prevalent in urban populations followed by the urban slums Obesity rates were the lowest in rural populations.

In our study the prevalance of obesity was found to be more in females living in joint familiesas compared to those living in nuclear families The finding is consistent with the study done by Nafisa et al[85] where it is observed that females living in nuclear families are more active as compared to females living in joint families resulting in obesity.

Obesity was preponderant in females with high socioeconomic scale. Similar study conducted by Sobal, Jeffery; Stunkard, Albert J [49] reported that in developing societies showed a strong direct relationship exists between SES and obesity in women.

Conclusion

The overall prevalence of obesity was observed as 9.4%.Maximum prevalence of obesity was observed in 51-60 years of age group Number of obese females was more in urban(11.3 %)Maximum percentage of obesity was found among widows (13.3%).Retired group among occupation had preponderant obesity(25%)Females in joint families were significantly obese11.2% as compared to nuclear families 8%.Obesity was more in females belonging to socioeconomic class1(15.2) and class 2(12.0).

Recommendations

Increasing prevalence of obesity among females need immediate attention in terms of prevention and health education .Long term prevention in terms of physical activity ,healthy eating and active living in many settings is necessary to achieve obesity free life.

Life style modification like increase in physical activity, decrease in consumption of sugar sweetened beverages, increase breast feeding initiation, reducing the consumption of high energy dense foods, decrease television viewing should be started early in life and continued across the life span.

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