

Prevalence of overweight & obesity in adult urban womenAnand Ranjan¹, Nitesh Mangal^{2*}, Pradeep P. Shinde³¹Assistant Professor, Department of Community Medicine, Pacific Institute of Medical Sciences, Umarda, Udaipur, Rajasthan, India²Associate Professor, Department of Community Medicine, Pacific Institute of Medical Sciences, Umarda, Udaipur, Rajasthan, India³Professor, Pacific Institute of Medical Sciences, Umarda, Udaipur, Rajasthan, India

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Abstract

Background: Worldwide the prevalence of overweight and obesity have become more than double since 1980. Developing countries experienced more dramatic rise in the prevalence of obesity in recent decades. Prevalence of obesity is increasing in all Indian population. Obesity is a major risk factor for many non-communicable diseases.

Aim & objective: To study the prevalence of overweight and obesity in adult females. To study various epidemiological factors associated with overweight & obesity. **Methods:** A community based cross sectional study was conducted and 635 women were studied. Predesigned questionnaire was used to collect relevant socio-demographic information. Anthropometric measurements such as weight, height, waist circumference and hip circumference were measured using standard techniques. **Results:** In study population prevalence of overweight was 17.17 % and obesity was 6.45 % ;while 38.26 % had central obesity. Obesity was significantly associated with age, socio-economic status and physical activity. **Conclusions:** Prevalence of obesity is increasing in India. This observation emphasizes large scale awareness campaign about obesity.

Keywords: Overweight, Obesity, Women.

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Introduction

Worldwide, the prevalence of overweight and obesity have become more than double since 1980, which reached to 1.9 billion overweight and 600 million obese adult in 2014. In an estimation by WHO it is predicted that around 2/3rd of the global burden of disease will be accredited to chronic non-communicable diseases, most of them strongly associated with diet [1]. Developing countries experienced more dramatic rise in the prevalence of obesity in recent decades [2]. Obesity and overweight are creating a global epidemic. Obesity is an increasingly important public health problem of global significance [3].

Diet, eating pattern, Physical inactivity, sedentary lifestyles, environmental factors, alcohol consumption, improved health facilities, increase in income and availability of food and psychological factors contribute to obesity [4,5]. This global epidemic is related to increased mortality and morbidity rates with excess body fat being a significant risk factor for a non-chronic disorders such as CVD, NIDDM, gout, gall stones, intestinal blockage, kidney disease, sleep apnea, hernia and arthritis. It also increases likelihood of backache and flat foot [5,6]. In addition, the obese suffer from bias, prejudice and discrimination. As obesity is a life threatening problem, giving rise to various complications, ways and means of reducing the occurrence of obesity need to be explored. According to the National family health Survey-3 (NFHS-3) in India, overweight and obesity are three times higher in urban areas than in rural areas and more common among women [7].

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Aim & objectives

- To study the prevalence of overweight and obesity in adult females.
- To study various epidemiological factors associated with overweight & obesity.

Material & methods

A community based cross sectional study was conducted in the field practice area of urban health center run by community medicine department of medical college. A house to house survey was done and all females above 20 years of age were included in study. Females with disorder such as any pathological edema, Cushing's syndrome and pregnancy were excluded from study. A total of 635 subjects were included in study. Detailed information regarding age, sex, educational status, marital status, occupation and occupational activity, religion, etc. was obtained using predesigned questionnaire. Modified B.G. Prasad classification updated for June 2011 was used for socioeconomic classification. Measurements such as weight, height, waist circumference and hip circumference were measured using standard techniques. BMI was calculated using formula weight/height in m² and Waist hip ratio was calculated by dividing waist circumference by hip circumference. Waist hip ratio was used for defining the central

obesity. In female, WHR > 0.85 indicates central obesity. Data was then analysed for results.

Results

A total of 635 women above 20 years of age were studied, out of these 109 (17.17%) were overweight while 41 (6.45%) had obesity; overall prevalence of overweight and obesity in present study was 23.62% (table-1). On the other hand in present study 243 (38.26%) had central obesity i.e. waist hip ratio above 0.85. In present study increase in prevalence of overweight and obese with increase in age was observed. Women in age group of 40 to 49 had highest 40.49% prevalence of obesity. This association between age and obesity was statistically significant. Similarly significant association was observed between age and central obesity (table-2). In present study we could establish statistically significant association of obesity with socio-economic status. Prevalence of obesity increased as socio-economic status improved (table-3). Physical inactivity was an important cause of obesity in our study. Women with sedentary lifestyle had highest 50.53% prevalence of overweight and obesity. This association between physical inactivity and obesity was also statistically significant (table-4)

Table 1 : Distribution of study subjects according to BMI

BMI	No. of women in group	Percentage
<18.5	121	19.05
18.5-24.99	364	57.32
25-29.99	109	17.17
30-34.99	29	4.57
35-39.99	11	1.73
>40	1	0.16
Total	635	100

Table 2: Relationship between age and obesity

Age group	Total no of subjects in group	Overweight and obese	Prevalence in percentage	Subjects with WHR > 0.8	Prevalence in percentage
20-29	224	27	12.05	31	38.83
30-39	171	44	25.73	79	46.19
40-49	148	58	39.18	93	62.83
50-59	57	16	28.07	28	94.12
>60	35	5	14.28	12	34.28
	635	150	23.62	243	38.26

X² for obesity = 39.17, df=4, p<0.001

X² for WHR = 102, df=4, p<0.0001

Table 3: Relationship between SES and obesity

Social class	Total No. of subjects in class	Overweight and obese	Non-obese	Prevalence of obesity
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I	24	2	22	8.33
II	76	7	69	9.21
III	140	19	121	13.57
IV	377	119	258	31.56
V	18	3	15	16.66
Total	635	150	485	23.62

$X^2=31.21, df=2, p<0.0001$
For calculation social class I clubbed with social class II and social class IV with V

Table 4: Relationship between physical activity and obesity

Physical Activity	Total No.of subjects in group	Overweight and obese	Nonobese	Prevalence in group
Sedentary	186	94	92	50.53
Light	377	46	331	12.20
Moderate	45	6	39	13.33
Heavy	27	4	23	14.81
Total	635	150	485	23.62

$X^2=105.69, df=2, p<0.0001$
For calculation sedentary activity moderate and heavy clubbed together

Discussion

In this study population, the prevalence of overweight (BMI>25) was 17.17% and the prevalence of obesity (BMI>30) was 6.45%. This was higher than the prevalence of obesity 15.6% estimated by Mishra et al [8] in females in an urban slum population in North India. The prevalence of overweight / obesity was highest (39.18%) in the age group between 40-49 years and there was significant association between the prevalence of overweight / obesity and age. In line with our study Mishra et al [8] had reported significant increasing trend in the prevalence of obesity with advancing age. Another significant observation of this study was the association of socio-economic status with the risk of being overweight and obese. Socio-economic status is a factor which has been linked to problem of overweight and obesity by many other authors [9,10,11]. In present study women with sedentary lifestyle and highest 50.53% prevalence of overweight and obese. This association between physical inactivity and obesity was also statistically significant. A large multi-centric study conducted in five cities of India has shown highly significant association between sedentary lifestyle and obesity [12].

Conclusions and recommendations

The prevalence of obesity is increasing in urban women of India. Improving socio-economic status and sedentary lifestyle along with advancing age are major

risk factors for development of obesity. Obesity is associated with very severe long term health hazards such as diabetes mellitus, dyslipidemia, polycystic ovarian disease, hypertension etc. The epidemic of obesity needs to be controlled at earliest. A large scale awareness campaign to sensitize population regarding long term complications of obesity and measures to prevent needs to be launched.

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