

Prevalence of Overweight and Obesity Among Adult Urban Females of Punjab: A Cross-Sectional Study

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INTRODUCTION

The prevalence of overweight and obesity is escalating rapidly worldwide. Some scientists (Hill and Peters, 1998; Popkin and Doak, 1998) concluded that obesity has already reached epidemic proportions in developed countries and their observation is that the developing world might fall into its grip very soon.

The most comprehensive data on the prevalence of obesity worldwide are from the WHO MONICA study (1989) and the majority of data in this study are from about 48 European populations. According to this study, the prevalence of obesity and overweight in European adult population (aged between 35-64 years) is 50-70%. Only limited data on the prevalence of obesity are available for South-East Asian countries. Some studies assessing nutritional status have been carried out, particularly in India, but these have generally focused on undernutrition. Even they have taken selected population groups for study and have not used the WHO classification of obesity. Shetty and Tedstone (1997) and WHO (1998) reported that as many countries in South-East Asia are presently undergoing the so-called nutrition transition, there is special need to collect good quality nationally representative obesity prevalence data. It is important that developing countries, especially those in rapid transition, make immediate efforts to collect data on the prevalence of obesity in their populations and then set goals or targets to reduce its prevalence. India is also passing through such a transitional phase of socio-economic development which has the potential of altering the nutritional status of her population groups. Punjab is an economically advanced and physically robust state of the country. Urban upper middle class population of Punjab has achieved a socio-economic status similar to that of the developed societies, especially with respect to living conditions and nutritional intake. The socio-economic development has created changes in dietary intake, food consumption patterns and physical activity levels. They all have contributed to

the problem of increasing overweight and obesity in Punjabi population, especially among women. Therefore, in the present study, an attempt has been made to report the prevalence of obesity in urban upper middle class women of Punjab.

MATERIAL AND METHODS

In this cross-sectional study, the data from 1,000 adult females of age 20 and above were collected during the year 1998-99. All the subjects were of Punjabi origin and belonged to upper middle class with income ranging from Rs. 10,000-15,000/- per month. The majority of data were collected from residential colonies occupied by well-to-do officers, professors, doctors and businessmen of Amritsar and Ludhiana cities of Punjab.

For the assessment of obesity, height and weight measurements were taken on each subject using standard protocols given by Weiner and Lourie (1981). The practical and clinical definition of obesity is based on body mass index (BMI). Therefore, the value of BMI was calculated for each subject.

$$\text{BMI} = \text{Weight (kg)} / \text{Height (m)}^2$$

The suggested critical limits of BMI by WHO (1998) were utilized for the assessment of malnutrition.

| <i>Classification</i> | <i>BMI (kg/m²)</i> |
|-----------------------|-------------------------------|
| Underweight | < 18.5 |
| Normal range | 18.5-24.9 |
| Overweight | 25.0-29.7 |
| Obese (Grade I) | 30.0-34.9 |
| Obese (Grade II) | 35.0-39.9 |
| Obese (Grade III) | = 40.0 |

RESULTS AND DISCUSSION

Body mass index provides the most useful albeit crude population level measure of obesity and it can be used to estimate the prevalence of obesity within a population (WHO, 1998). Therefore, in the present study, the prevalence

rate of malnutrition was calculated according to the critical limits of BMI as recommended by WHO (1998). Table 1 presents the distribution of all subjects according to BMI classification. Out of 1,000 females, only 45 females (4.5%) are underweight and 502 (50.2%) are normal while 200 females (20%) are overweight, but 121 (12.1%) are in obesity grade I, 80 (8%) in obesity grade II and 52 (5.2%) are in obesity grade III. Or, in other words, the prevalence of overweight and obesity in the present sample is 20% and 25.3%, respectively (Table 2). Thus, it is apparent from the present study that nearly half of the females belonging to upper middle class in Punjab are currently overweight/obese.

While comparing the present data with other populations of India (Table 3), it is apparent that the prevalence rate of overweight/obesity in the present study is in line with other Indian studies which had also shown a high prevalence of overweight and obesity in high income groups. Gopinath et al. (1994) studied urban women of Delhi and reported the prevalence rate of obesity as 33.4%. Visweswara Rao et al. (1995) studied females belonging to high socio-economic status of Hyderabad and reported the prevalence rate of obesity as 36.3%. The Nutrition Foundation of India has just completed a study on the prevalence of obesity in urban Delhi and reported the prevalence rate of overweight (BMI 25+) and obesity (BMI > 30) as 50% and 14%, respectively (Gopalan, 1998). The observations regarding the European populations deduce that (WHO MONICA Study 1989) the prevalence of obesity and overweight is in the range of 50-70% in people aged between 35-64 years. The prevalence of overweight/ obesity in

Table 1: Classification of urban upper middle class Punjabi females according to Body Mass Index.

| Body Mass Index (BMI) | Number of subjects | Percentage prevalence | Nutritional status |
|-----------------------|--------------------|-----------------------|--------------------|
| < 18.5 | 45 | 4.5 | Undernourish |
| 18.5-24.9 | 502 | 50.2 | Normal |
| 25.0-29.9 | 200 | 20.0 | Overweight |
| 30.0-34.9 | 121 | 12.1 | Obese I |
| 35.0-39.9 | 80 | 8.0 | Obese II |
| ≥ 40.0 | 52 | 5.2 | Obese III |

Table 2: Percentage prevalence of overweight and obesity among Punjabi women according to WHO (1998) Classification of BMI

| Body Mass Index (BMI) | Number of subjects | Percentage prevalence | Nutritional status |
|-----------------------|--------------------|-----------------------|--------------------|
| 25.0-29.9 | 200 | 20.0 | Overweight |
| > 30.0 | 253 | 25.3 | Obese |

Table 3: Prevalence of obesity in India (BMI > 30 kg/m²).

| Study group | Percentage prevalence and obesity | Investigators |
|--|-----------------------------------|--------------------------------------|
| Delhi urban female population of Hyderabad | 33.4 | Gopinath et al. (1994) |
| Urban female | 36.3 | Vishweswara Rao et al. (1995) |
| Delhi urban females | 48.6 | Nutrition Foundation of India (1999) |
| Punjabi urban females | 25.3 | Present study |

the urban middle class women of Punjab as revealed from the data of the present study is no doubt less than what has been reported for the industrialized Western countries. Gopalan (1998) reported that overweight/obesity may not be considered a specific 'disease', but it is certainly the 'mother' of important degenerative diseases in adult life. The prevention and control of this problem must, therefore, claim priority attention. Therefore, appropriate precautionary measures to prevent further progression of the problem into an epidemic must be taken right at this stage. Because if the present trends of overweight/obesity continue, the situation can get worse even within a decade and overweight could emerge as the single most important public health problem in adults.

KEY WORDS Overweight. Obesity. Body Mass Index. Punjabi Females.

ABSTRACT In the present study, an attempt has been made to report the prevalence of overweight and obesity in 1,000 adult urban females of Punjab. For the assessment of overweight and obesity, the height and weight measurements were taken on each subject. The prevalence rate of malnutrition was calculated according to the critical limits of BMI. The observations reveal that the prevalence of overweight and obesity in the present sample is 20.0 and 25.3%, respectively.

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