

Research Article

# A Descriptive Study to Assess the Prevalence of Overweight, Obesity and Its Associated Factors Among Women of Reproductive Age Group in Urban Area of Rohtak

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## I N F O

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## A B S T R A C T

Obesity is a leading preventable cause of death worldwide, with increasing prevalence in adults and children, and authorities view it as one of the most serious public health problems of the 21st century. The burden of obesity is expected to increase approximately double among Indian adults aged 20-69 years between 2010 and 2040.

*Material & Method:* A cross-sectional study was carried out in the urban area of Rohtak. Study subjects were women of age 15-49 years. Sample size 100 was selected by using Convenient sampling technique.

*Objectives:* To find out the prevalence of obesity and overweight in women of reproductive age group and to assess the factors associated with obesity and overweight among selected women and to determine the relationship between overweight and obesity and socio-economic factors, physical activity and dietary intake among women.

*Procedure:* Data collection was done by conducting house to house visits and doing an interview using a structured questionnaire interview schedule and BMI calculation by weight and height measurement and waist Hip ratio by measurement of waist and hip.

*Result:* Chi square test was used to find out the association of findings with their selected demographical variables and clinical variables among women. Out of 100 samples 7(7%) women are underweight, 35(35%) women's having normal body weight, 37(37%) women overweight and 21(21%) are obese.

*Conclusion:* Prevalence of overweight was high as compared to obesity in community area; level of activity, meal intake, fruits intake and exercise were found to be strongly associated with obesity.

**Keywords:** BMI, Prevalence, Reproductive age, Obesity, Overweight

## Introduction

Obesity is a leading preventable cause of death worldwide, with increasing prevalence in adults and children, and authorities view it as one of the most serious public health problems of the 21<sup>st</sup> century. The prevalence of obesity is rising globally and in India. Overweight, obesity and related diseases need to be delineated in Asian Indian women. Women have higher prevalence of overweight and obesity as compared with men in India and that obesity are increasing in the youth. Overweight and obesity have reached epidemic proportions globally.<sup>2</sup>

Overweight and obesity are the fifth leading risk for global deaths. At least 2.8 million adults die each year as a result of being overweight or obese. Sixty-five per cent of the world's population live in countries where overweight and obesity kills more people than underweight (WHO, 2013). Most studies show an increase in mortality rates associated with obesity. Individuals who are obese have a significantly increased risk of death from all causes, compared with healthy weight individuals (BMI 18.5 to 24.9), and most of this increased risk is due to cardiovascular causes which may lead to death.<sup>2</sup>

Obesity results when too much fat accumulates in the body. A person is normally considered obese when his or her weight is 20 per cent over the normal body-weight for height, age and the Body Mass Index (BMI) measures 30 or more (WHO 2013). Obesity has now become an important health problem in developing countries particularly in India which is currently experiencing a rapid epidemiological transition. The epidemiological transition has its positive side in that it has resulted in an increased life expectancy and a decrease in infant mortality rates and deaths.<sup>14</sup>

Industrialization and urbanization which lead to rise in standards of living, also promote weight gain and obesity rates begin to rapidly rise thus posing a growing threat to the health of the nation. A sedentary lifestyle plays a significant role in obesity. Worldwide there has been a large shift towards less physically demanding work, and currently at least 60 per cent of the world's population gets insufficient exercise. This is primarily due to increasing use of mechanized transportation and a greater prevalence of labor-saving technology in the home. Obesity is an independent risk factor for the development of coronary artery disease (CAD) in women and is an important modifiable risk factor for prevention of CAD. The mechanism of action is likely the relationship between obesity and insulin resistance.<sup>[15]</sup>

## Need of the Study

Generally, In Haryana there is limited up-to-date data on prevalence of overweight and obesity as priority has always been on undernutrition although there is no

evidence to suggest that obesity exists in both developed and developing countries. This study is necessary because the problems of the obese women, no longer solely those of increased risks of disease, but of disease itself health care providers are increasingly challenged to provide evaluation and treatment for the serious co-morbidities and complication of obesity in adults. Many of these co-morbidities and complications are "invisible" and require careful and focused history and laboratory evaluation to elicit. Treatment of the complications and co morbidities should be focused on preventing progression, reversing the disease process, and achieving control of obesity with family-based life style changes that allow the women to maintain a healthy balance between her genetic predisposition and the environment. Many countries in the region have focused primarily on undernutrition and food insecurity since these are more prevalent thus trends in obesity have only been documented in a few countries or populations, hence the need to carry out the study. While a number of studies have been carried out to determine the prevalence of overweight and obesity in this region, most of these studies have relied predominantly on the body mass index (BMI) as an indicator of overweight and obesity. Few have examined the total body fat percentage and its distribution.<sup>7</sup>

Dietary intake and physical activity are widely recognized as important factors in development of overweight and obesity yet data is lacking on the relationship of dietary intake and physical activity with overweight and obesity. This study addresses these gaps by combining three methods of assessing overweight and obesity namely: BMI, Hip circumference, waist circumference and waist to hip Ratio. At the same time the study addresses the relationship between overweight and obesity and physical activity, dietary intake and the socio-economic characteristics of the participants. The socio-economic characteristics were considered important factors in the development of overweight and obesity. Tackling the problem in its early stages may lead to reduction in its occurrence thus reducing the costs eventually. This can only be achieved if data is available to quantify the magnitude of the problem, hence the need to carry out the study<sup>7</sup>

**Objectives:** To find out the prevalence of obesity and overweight in women of reproductive age group , to assess the factors associated with obesity and overweight among selected women and determine the relationship between overweight and obesity and socio - economic factors, physical activity and dietary intake among women

## Research Methodology

The methodology section outline the plan and method that how the study is conducted. This includes Universe of the study, sample of the study, Data and Sources of Data,

study's variables and analytical framework. The details are as follows:

### Study design

The research design of a study spells out the basic strategy that a researcher adopts to develop evidence that is accurate and interpretable. Descriptive research which includes survey and fact, finding enquiries of different kinds was selected for present research and it was used to determine prevalence of overweight, obesity and its associated factors among women.

To achieve the objectives of the study Cross sectional design was used.

### Population and Sample

100 samples selected through convenient sampling technique.

### Data and Sources of Data

For this study, data were collected through door-to-door home visit were obtained from 9 march 2022 to 8 April 2022 and the same day, data were collected from the study subjects through a structured questionnaire interview schedule regarding socio-demographic variables, factors that associated with overweight and obesity and any other query was solved by the investigator and anthropometric measurement which includes height, weight, waist circumference, hip circumference, BMI, waist to hip ratio.

The height was recorded to the nearest of 0.1 cm. by using non-stretchable measuring tape, whereas a portable weighing balance was used to measure weight of the women. BMI is calculated by using ratio of weight (kg) to height (m<sup>2</sup>) of a subject. A measuring tape/inch tape was used to measure the waist and hip circumference. The waist and hip circumference were noted while women were standing in upright position.

### Sampling criteria:

#### Inclusion criteria:

1. Women of reproductive age group (15-49 years) who were available during the study period.
2. Those who were willing to participate in the study.

#### Exclusion criteria:

1. Those who were not willing to participate in the study.
2. Pregnant women.
3. Women whose age more than 49 years

### Conceptual framework

Variables of the study contain research variables and demographic variables. In this study, height, weight, waist and hip circumference and waist to hip ratio were the research variables and age, religion, type of family, marital

status, educational status, occupation, family income were the demographic variables.

Overweight and obesity are mainly a consequence of imbalance between energy in and energy out of the body. Activity patterns of women have changed dramatically worldwide, as more people are driven by technology-based and comfort-oriented lifestyles.

Sedentary life makes the consumed food to remain in the body unutilized for various metabolic activities. Main determinant of overweight and obesity is an imbalance between the amount of energy intake and that of energy expenditure. This can be influenced by an individual family economic status which influences family nutrition and physical activities' policy. Women from families with good economy are less exposed to physical activities as many of them are got done by machines or house workers while exposed to overfeeding. This makes them expend less energy than they consume, thus the excess being stored as body fats. Influences of overweight and obesity such as individual, family, community and society, are mediated by increased time indoor, increased access to food, decreased opportunity to physical activities, increased Television (TV) time, and increased exposure to food advertisements.

### Scoring criteria, according to WHO:

S. No.	Category	BMI (kg /m <sup>2</sup> )
1.	Underweight	<18.5
2.	Normal	18.5-24.9
3.	Overweight	25.0-29.9
4.	Obese	>30.0

Health risk level	W/H Ratio
Low	0.80 or lower
Moderate	0.81 - 0.85
High	0.86 or higher

### Data analysis

This section elaborates the proper statistical analysis which are being used to forward the study from data towards inferences. The data obtained from 100 study subjects was analyzed by using descriptive and inferential statistics. A master data sheet was prepared and compiled demographic data, containing selected sample characteristics and analyzed using frequency and percentage distribution. Parameters such a frequency and percentage distribution were used to describe the sample characteristics in the form of tables, charts and graphs. Descriptive Statistics were used to find the standard deviation, mean and normally distribution of the data of all the variables of the study.

The analyzed data was organized as follows:

S. No.	Quantative Parameter	Mean + Standard deviation	Median	Range
1.	BMI	26.15%+ 5.73	25.4%	28.10%

According to BMI, out of 100 study subjects 7% women were found to be **underweight**, 35% women were **Normal**, 37% were found to be **Overweight** and rest 21% found to be **obese** and in terms of Waist/hip ratio, out 100 study subjects, 7(7%) women were found to be **Low**, 51(51%) women were having a moderate **W/H ratio**, 42(42%) were having a **High, W/H ratio**.

A Chi-square test was applied to find out the relationship between demographic variables and prevalence. Data were analysed using the SPSS 20.0 software.

Demographic variables, age, marital status, occupation and level of activity were associated with obesity.

In terms of other variables, meal intake, fruits intake and exercise were found to be statistically associated with obesity and overweight and religion, education, income, type of family, junk food consumption, sweet consumption, family history of any disease, general health checkup, history of any surgery, history of illness, helper/maid sleeping duration and hours spent on mobile/ TV were not found to be statistically significant ( $p < 0.05$ ).

## Discussion

In this study, out of 100 study subjects, the overall prevalence of overweight and obesity was combined 58%. Approximate similar results have been reported in previous studies was conducted in Vellore (**Baby Saroja et al., 2020**) revealed that out of 639 study subjects, overall prevalence of combined overweight and obesity was 52.1% (according to WHO cut off).

A similar study was supported by (**Vandana Pakhide et al., 2019 at Bhopal**) revealed that out of 100 study subjects, the overall prevalence of combined overweight and obesity was 55%.

However, in the present study highly significant association was found between the prevalence of overweight and obesity with age, marital status, occupation.

Apart from the other factors for obesity and overweight are physical activities like sedentary lifestyle, meal intake and fruits intake and most important factor exercise, which has critical role in development of obesity and overweight, which is similar to study done among women. We did not find any significant association between education, income of family.

A cross sectional study conducted at Kibera division, showed that the non-significant association between prevalence and education.

## Conclusion

From the findings of the study following conclusion were drawn:

- The overall prevalence of overweight and obesity in the study population was combinedly 58%.
- The prevalence of overweight and obesity was higher among subjects with 42 to 49 years that is 19%
- The association between overweight and obesity following with age, marital status, occupation, level of activity, meal intake, fruits intake and exercise was highly significant.
- There was no significant relationship between overweight and obesity following with religion, education, income, type of family, junk food consumption, sweet consumption, family history of any disease, general health checkup, history of any surgery, history of illness, helper/maid sleeping duration and hours spent on mobile/ TV.

## Limitation

- This study was limited to single urban area of district Rohtak.
- This study was limited to age group 15-49 years of the urban area.
- This study was limited to gender women of urban area

## Recommendation

After the analysis of the data, the following recommendations are hereby made:

- Large sample size with more parameters can be taken.
- The same study can be done in different settings.
- The comparative study can be done like urban and rural, north and south, etc.

## Recommendation Related to Findings on Study Subjects

- A high prevalence of overweight and obesity was observed in this study compared to studies done in previous years which raise a public health concern.
- Appropriate lifestyle modification can prevent the development of full-fledged obesity.
- People should do regular exercises to reduce body weight which is continuing risk factor for complications in those with established obesity.
- To reduce the incidence of obesity there is a need of effective implementation of primary preventive strategies through health education to the community.

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