

Study on Body Mass Index, Waist Circumference and Waist Hip Ratio In Urban Area of Ranchi District

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Abstract: Background: Waist circumference and waist hip ratio are major indicators of obesity. The present study was aimed at finding BMI, Waist Circumference and Waist hip Ratio in adults accompanying patients coming to Sadar Hospital, Ranchi. Methods: This cross-sectional study was conducted at Sadar Hospital, Ranchi by including 243 subjects. Pre-tested proforma was used to collect information by interview and clinical examination. Results: 42.8% respondents were non-vegetarian and 82% consumed junk food. 5.3% were obese as per BMI, 2.9% as per waist circumference and 9.9% as per waist hip ratio. Obesity needs monitoring and steps to prevent obesity is the need of the hour. [Reema K NJIRM 2017; 8(5):79-81]

Key Words: BMI, Waist circumference, waist hip ratio, Ranchi, adults

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Introduction: Obesity is associated with increased risk of many non-communicable diseases^{1,2}. Major among these are diabetes and cardiovascular diseases^[3]. Rapid urbanization associated with increased consumption of fast food, high levels of psychological stress and decreased physical activity has led to increased prevalence of obesity⁴. Obesity has become a major public health problem in developed as well as developing countries⁵.

Various anthropometric measurements have been used to assess obesity. BMI has been considered to be useful for general obesity while waist circumference and waist-hip ratio are more useful for central obesity. Latter two are better predictors of obesity related complications⁶⁻⁹.

Studies conducted in different places have indicated obesity to be ranging from 2.12%¹⁰ to 10.7%¹¹. Studies have not been published regarding recent pattern of obesity in Jharkhand. Monitoring of trends of health related parameter is crucial to proper planning and prediction of future diseases. Hence the present study was conducted with aim to find BMI, Waist Circumference and Waist hip Ratio in adults accompanying patients coming to Sadar Hospital, Ranchi.

Methods: The present cross-sectional study was conducted in urban area of Ranchi. It included adults between 18-65 years of age who were usual residents. Temporary visitors and seriously ill persons were excluded.

Sampling: A study conducted by Gupta et al in Jaipur found that 16.5% adults suffered from obesity⁴.

Sample size was calculated as follows, taking prevalence as 16.5% and absolute precision of 5%-

$$\text{Sample size} = 4XpXq / d^2 = 221$$

Considering non-response rate of 10% and after rounding off, sample size of 250 was calculated. Seven participants refused to give consent and a total of 243 respondents were studied. The adults accompanying patients to the hospital and fulfilling inclusion criteria were selected for the study.

Informed consent was taken from the respondents and they were ensured about confidentiality. The data collection included personal interview with the respondents using semi-structured pre-tested questionnaire containing open and closed ended questions. Clinical examination emphasized measurement of height in centimetres using stadiometer, weight in kilograms using calibrated weighing scale, waist circumference with the person breathing silently and hip girth measured as standing inter-trochanteric girth. The data was coded and entered in Microsoft Excel 2007, cleaned and analyzed by using SPSS version 11.0. Categorical variables were summarised as percentage while continuous variables were presented as Mean \pm SD.

Result & Discussion: Background Profile of respondents- In this study, 243 respondents (137 males and 106 females) were included. The mean age of the respondents was 39.7 \pm 9.6 years. The literacy rate was 57.3% and sample consisted of 71.3% Hindus, 17.9% Muslims and 10.8% Christians. 78.4% were married. Average family size was 3.9 \pm 1.7. Median per capita income was 1733 Rs. per month.

Dietary and exercise related practices:**Table-1 showing diet and physical activity**

Indicator	N (%)
Dietary pattern	
Vegetarian	139 (57.2%)
Non-vegetarian	104 (42.8%)
Use of junk food	
- No	43 (17.7%)
- <4 times per week	124 (51%)
- >= 4 times per week	76 (31.3%)
Physical activity	
- No exercise	131 (53.9%)
- Walking	80 (32.9%)
- Yoga	22 (9.1%)
- Others	10 (4.1%)

About 57% respondents were vegetarian. 82% used junk food at least once a week. 53.9% respondents did not do any physical exercise. Kaur et al found that 43.4% respondents were vegetarian and 94% used junk food. 52.9% did not do any exercise^[10].

Anthropometric indices:**Table-2 showing anthropometric indices**

Category	BMI	Waist circumference	Waist hip ratio
Under weight	46 (18.9%)	0	0
Normal	167 (68.7%)	219 (90.2%)	157 (64.6%)
Over weight	17 (6.9%)	17 (6.9%)	62 (25.5%)
Obese	13 (5.3%)	7 (2.9%)	24 (9.9%)

It was seen that 5.3% respondents were obese as per BMI, 2.9% as per waist circumference and 9.9% as per waist hip ratio. Central obesity is commoner than general obesity. Kaur et al found these values as 2.12%, 2.65% and 7.94%¹⁰. Kamble et al found waist circumference to be 75.99 ± 0.67 cm. in Wardha¹¹. Gupta et al in their extensive study conducted in Jaipur found that 16.5% respondents were obese while 44.2% were overweight as per BMI. Abdominal obesity was seen in 32.2% and truncal obesity in 62.8%⁴. Studies have shown prevalence of abdominal obesity to be 9.4% to 22% in men and 16% to 51.1% in women^{12, 13}.

Conclusion: It can be concluded from the present study that obesity rate is high in urban area of Ranchi when compared to other places.

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