



Research article

DESCRIPTIVE ANALYSIS OF BODY MASS INDEX AMONG RURAL MALE ADULT POPULATION

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Abstract

Body mass index (BMI) is a predictive value resultant from weight and height ratio which tries to measure the quantity of tissue mass of an individual. The present study was entitled with descriptive analysis of BMI among rural male adult population. To attain the purpose of the study 324 male college students were randomly selected from rural area of Coimbatore, Tamil Nadu. The age of subjects ranged from 18 to 26 years. The height and weight of the subjects were collected by standard measuring equipments. The selected criterion variable body mass index (BMI) was assessed by weight height ratio. The collected data was analyzed by SPSS package 20.0. The average height, weight and BMI of the subjects were 1.69 m, 62.68 kg and 21.93 kg/m² respectively. BMI percentiles of male adult population showed that only 9% of subjects falls below 18.50 kg/m² (Underweight < 18.5), 58% of subjects falls below 22.90 kg/m² (Normal 18.5 to 22.9), 20% of subjects falls below 24.90 kg/m² (Overweight 23 to 24.9) and 13% of subjects falls below 36.33 kg/m². The study was concluded that most of people in this study had better BMI value i.e., most of population had normal BMI distribution, while comparing to the WHO's BMI distribution.

Key Words: *Body mass index, Adult population, World Health Organization*

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INTRODUCTION

The body mass index (BMI) is a predictive value derived from the body weight and height of an individual. The BMI is an attempt to quantify the amount of tissue mass (muscle, fat, and bone) in an individual, and then categorize that person as underweight, normal weight, overweight, or obese based on that value (Malcolm, 2015).

In our modern era, which fully deals with technologic and scientific achievement, so that man has walked on moon, developed surgical procedures to prolong and enhance the quality of life, and discovered many secrets of molecular interaction, but there is no adequate explanation for a simple question: why do people become too fat, and what can be done to prevent it? (Abraham and Johnson, 1980). To become obese is a long term process, it may occur early in childhood, or the chances for adult are three times greater compared to children. Excess of fat slowly deposited in adipose tissue during the adult years with ages 25 to 40 are danger year (McArdle et al., 1991).

The BMI ranges are based on the relationship between body weight and disease and death (WHO Technical Report Series, 1995). Overweight and obese individuals are at an increased risk for the following diseases: Coronary artery disease, Dyslipidemia, Type 2 diabetes, Gallbladder disease, Hypertension, Osteoarthritis, Sleep apnea, Stroke, At least 10 cancers, including endometrial, breast, and colon cancer (Bhaskaran et al., 2014 and NHLBI, 2013).

Commonly accepted BMI ranges are underweight: under 18.5 kg/m², normal weight: 18.5 to 25, overweight: 25 to 30, obese: over 30. People of Asian descent have different associations between BMI, percentage of body fat, and health risks than those of European

descent, with a higher risk of type 2 diabetes and cardiovascular disease at BMIs lower than the WHO cut-off point for overweight (Public Health, 2004). Indians were categorized as underweight (<18.5 kg/m²), normal or lean BMI (18.5–22.9 kg/m²), overweight (23.0–24.9 kg/m²) and obese (≥25 kg/m²) based on the revised consensus guidelines (Nuzhat et al., 2014).

BMI cut-off points are also used clinically to identify high-risk individuals for screening; identify individuals for absolute risk assessment; determine the type and intensity of treatment; monitor individuals for effects of treatment over time; determine institutional policies on individuals (for example, insurance reimbursement) and increase awareness of risk for individuals (Public Health, 2004).

It is hard to segregate the cause of obesity into different categories because the causes probably overlap. It seems fairly certain that the treatment procedures derived so far, whether they are diet, surgery, drugs, psychological methods, or exercise, either alone or in combination, have not been particularly successful in solving the problem on a long time basis. This is optimism, however, that as researcher continue to examine the many facets of obesity, as well as to test and enumerate various treatment modalities, and considerable progress will be made to conquer this major health problem (McArdle et al., 1991). From this, current problem descriptive analysis of body mass index among rural male adult population was originated.

METHODOLOGY

Selection of subjects and variables

To attain the purpose of the study 324 male college students randomly

participated from rural area of Coimbatore, Tamil Nadu. The age of subjects ranged from 18 to 26 years. The height and weight of the subjects were collected by standard measuring equipments. The selected criterion variable body mass index was assessed by weight height ratio.

STATISTICAL TECHNIQUE

The collected data on various parameters were subjected to statistical analysis. Mean, median, standard deviation (SD), coefficient of skewness, minimum, maximum, range and percentiles are calculated for getting idea about the data distribution. All the statistical analysis was done by SPSS package 20.0. The details were given in below tables.

RESULTS

TABLE-I
DESCRIPTIVE STATISTICS ON HEIGHT, WEIGHT AND
BMI AMONG RURAL MALE ADULT POPULATION

	N	Mean	Median	SD	Skewness	Range	Minimum	Maximum
Height	324	1.69	1.7	0.06	-0.41	0.35	1.5	1.8
Weight	324	62.68	61	9.41	1.06	60	45	105
BMI	324	21.93	21.66	2.97	1.1	20.66	15.67	36.33

From table 1, it is seen that the average height of respondents was 1.69m with SD 0.06. The median value was 1.70m indicating that more than 50% of respondents reported height above 170m. The heights ranged from 1.50m to 1.80m with a range of 0.35m. The distribution of heights was negatively skewed since the skewness was -0.41 indicating that more number of respondents reported higher scores for heights. Percentiles of height were shown in Table 2.

From table 1, it is seen that the average weight of respondents was 62.68 kg with SD 9.41. The median value was 61 kg indicating that more than 50% of respondents reported weight above 61 kg. The weight ranges from 45 kg to 105 kg with a range of 60 kg. The distribution of

weight was positively skewed since the skewness was 1.06 indicating that more number of respondents reported lower scores for weight. Percentiles of weight were shown in Table 2.

From table 1, it is seen that the average BMI of respondents was 21.93 kg/m² with SD 2.97. The median value was 21.66 kg/m² indicating that more than 50% of respondents reported BMI above 21.66 kg/m². The weight ranges from 15.67 kg/m² to 36.33 kg/m² with a range of 20.66 kg/m². The distribution of weight was positively skewed since the skewness was 1.10 indicating that more number of respondents reported lower scores for BMI. Percentiles of BMI were shown in Table 2.

TABLE-II
PERCENTILES OF BMI AMONG RURAL MALE ADULT POPULATION

Percentiles	9	67	87	100
BMI	18.50	22.90	24.90	36.33

Table-2 indicates that percentiles (N=324) of BMI of male adult population. The result showed that up to 9% of subjects had less than 18.50 kg/m² (Underweight < 18.5 kg/m²), 10-67% of subjects had BMI value between 18.50 kg/m² to 22.90 kg/m² (Normal 18.5 kg/m² to 22.9 kg/m²), 68-87% of subjects had BMI value between 22.90 kg/m² to 24.90 kg/m² (Overweight 23 kg/m² to 24.9 kg/m²) and 88-100% of subjects had BMI value between 24.90 kg/m² to 36.33 kg/m² (Obese > 25 kg/m²).

DISCUSSION

The relative percentage of body fat at different BMIs clearly varies within populations. It depends on environmental factors, such as the amount of physical activity, as observed in the differences between rural and urban populations in India and lower or higher BMI reflects whether increased risk of disease (i.e., diabetes and heart disease) and risk factors for chronic disease or death in Asian populations (**Public Health, 2004**). Due to industrialization and urbanization, the standard of living continues to rise particularly in developing countries. This has led to weight gain and obesity, which

are posing a threat to the health of citizens. Obesity is perhaps the most prevalent form of malnutrition in developing countries, both among adults and children (**Suman, 2014**). The study was carried by large samples (N=324) from rural area of Coimbatore District, Tamil Nadu. The findings of the study clearly indicates that most of population posses normal BMI.

CONCLUSION

High-level wellness is inextricably tied to a physically active lifestyle. If a person want to be an active participant in life—not just a spectator—health related physical fitness is essential. Many studies revealed that BMI is closely associated with physical fitness of a person. Decades changed but the rural part of India still remains in its cultural and food habits. So that most of people in this study had better BMI value, i.e., most of population had normal BMI distribution, while comparing WHO's BMI distribution. Even though need to focus on health of this rural population because percentage of overweight and obese population nearer to the normal population.

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