



A Study on Body Composition of Male Students in Tripura

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Abstract

This study aimed to examine the body composition status of the college students of Tripura. For this purpose Ninety (N=90) male students were selected from three different Zones of Tripura State. Thirty (30) students were randomly selected from each Zone. The selected variables of body compositions were Waist Hip Ratio (WHR), Body Mass Index (BMI) and Body Fat Percentage (BF%). Descriptive statistics (Mean and Standard Deviation) and ANOVA were used to analysis the data. The result of the study indicated that there were no significant difference of Waist Hip Ratio (WHR), Body Mass Index (BMI) and Body Fat Percentage (BF%) among three Zones. The health risk factors of the students were low. Body Mass Index (BMI) of the students was in normal. Body Fat Percentage (BF%) was also showed that athletic body posture of three Zone of Tripura.

Keywords: *Body Composition, Waist Hip Ratio (WHR), Body Mass Index (BMI), Body Fat Percentage (BF%), Tripura.*

1. Introduction

The rising of overweight and obesity is a major problem of public health which resulting numerous diseases and health disturbances in the world. Various researches have confirmed that around 6% of the total public health expenditure worldwide is related to physical inactivity, and overweight and obesity [8]. Now a day it is a serious issue of student life causing their secondary life style. They are very much attending with digital world rather than ground. Today it is a common problem of student life. So anthropometry assessment of their physique i.e. Body Mass Index (BMI), Waist Hip Ratio (WHR),

Body Fat Percentage (BF%) etc. are most important. BMI is widely most used method to check nutritional status in adults. According to WHO for 20 years old adults normal BMI is 18.5-28.9, below them are under weight and over are overweight and obese [8]. The BF% increase is in a direct relation to BMI values, especially among children and adolescents [5]. However, there are certain studies that have found some deviations in body composition values in that respect [3]. Waist-to-hip ratio (WHR) is the dimensionless ratio of the circumference of the waist to that of the hips. The WHR has been used as an indicator or measure of health, and the risk of developing serious health conditions. This study may help to understand the health status of the college going students of the state. For this purpose of the study was to compare the body composition status of the college students of Tripura.

2. Objective

The objective of the study was to compare the body composition status of the college students of Tripura. The body composition was assessed in the form of BMI, WHR and BF%.

3. Method

3.1. Subject

This study includes a total Ninety (N=90) male students from three different Zones of Tripura. Thirty (N=30) male students were randomly selected from each Zones as subject of this study. Data were collected from three different Zones of the state. These three Zones are West, South and North. This may help to understand the health status of the college going students of the state.

3.2. Variables

- I. WHR (Waist Hip Ratio) Measured from waist and hip Circumference.
- II. BMI (Body Mass Index) Measured from height and weight.
- III. BF% (Body Fat Percentage) Measured from age and skin measurement.

3.3. Instrument for data collection

The standard data collection procedures were used for the study. Age was recorded from Birth Certificate. Height was measured by Stadiometer. Weight was measured by Weighing Machine and recorded in kilogram. Waist Circumference was measured by Anthropometric tape. Hip Circumference was measured by Anthropometric tape. Skinfold was used for BF%. The body fat calculation was based on the Jackson and Pollock 3-site Calliper Method. All three site Skinfold was measured by Harpenden Skinfold Calliper.

3.4. Statistical technique for analysis data

For the purpose of the study descriptive statistics of Mean was used for to find out the average value, SD was used for determine the consistency of mean among the group and ANOVA was employed to determine the difference among those three groups. The level of significance was set at 0.05.

4. Result and discussion

After collecting the data statistical analysis were done. The obtained data were presented with descriptive statistics and ANOVA was performed to identify the significant difference. The mean and SD of Waist Hip Ratio (WHR) on the students of three Zones were presented in the table- 1.

Table: 1 Mean and SD of Waist Hip Ratio

Zone	Mean	SD	Total No. of Subjects
West	0.81	0.07	30
South	0.84	0.07	30
North	0.86	0.09	30

*Source- Primary data collected by the researcher, September 2017

The Mean and SD value of WHR on the subjects of West Zone were 0.81 ± 0.07 , South 0.84 ± 0.07 , North 0.86 ± 0.09 . This result indicated that the health risk factors of the students of different Zones were low, as because of the calculated values were lower than .95 which was set by WHO [7].

ANOVA of Waist Hip Ratio (WHR) on the students of three Zones was presented in the table- 2.

Table: 2 ANOVA of WHR among the three groups.

Source of Variation	SS	df	MS	F
Between Groups	0.03	2	0.02	3.08
Within Groups	0.34	63	0.01	
Total	0.38	65		

* SS- Some of Square, df- Degree of Freedom, MS- Mean Square, F- 'F' ratio.

Table-2 reveals that F-ratio of WHR on the subjects of three Zones was 3.08 which were smaller than the critical value. It was indicated that there was no significant difference among three groups. Raseta, N. et al conducted a study on interrelations between body mass index, percentage of body fat, and waist-to-hip ratio among different groups of students at the University of Banja Luka. In this study they did not found any significant difference [6].

The mean and SD of Body Mass Index (BMI) on the students of three Zones were presented in the table-3.

Table: 3 Mean and SD of Body Mass Index

District	Mean	SD	Total No. of Subjects
West	23.34	3.88	30
South	20.75	2.69	30
North	20.05	3.21	30

*Source- Primary data collected by the researcher, September 2017

Legend: BMI – Body Mass Index

The Mean and SD value of BMI on the subjects of West Zone were 23.34 ± 3.88 , South 20.75 ± 2.69 , North 20.05 ± 3.21 . According to WHO the normal range of BMI lying between 18.50-24.99 [7]. Considering the result, the BMI of the students of three Zones were in normal. ANOVA of BMI on the students of three Zones were presented in the table- 4.

Table: 4 ANOVA of BMI among the three groups

Source of Variation	SS	df	MS	F
Between Groups	132.51	2	66.25	6.09
Within Groups	685.62	63	10.88	
Total	818.13	65		

* SS- Some of Square, df- Degree of Freedom, MS- Mean Square, F- 'F' ratio.

Table- 4 reveals that F-ratio of BMI was 6.09 which was less than the critical value. So on the basis of Body Mass Index, there was no statistical significance among the students of three difference Zones of Tripura. Blodin et al., conduct a study on cross-sectional associations between empirically-derived dietary patterns and indicators of disease risk among university students [2]. In their study they also did not found any significant difference of BMI among the students of University.

The mean and SD of Body Fat Percentage (BF%) on the students of three Zones were presented in the table- 5.

Table: 6 Mean and SD of Body Fat Percentage

District	Mean	SD	Total No. of Subjects
West	9.50	5.96	30
South	7.59	3.53	30
North	10.64	3.65	30

*Source- Primary data collected by the researcher, September 2017

Legend: BF% – Body Fat Percentage

The Mean and SD value of BF% on the subjects of West Zone were 9.50 ± 5.96 , South 7.59 ± 3.53 , North 10.64 ± 3.65 . According to American Council on Exercise, the BF% having 6-13% fall in athletic body posture [1]. So all three Zones students were in good position considered the status of Body Fat Percentage.

ANOVA of BF% on the students of three Zone was presented in the table- 6.

Table: 6 ANOVA of BF% among the three groups

Source of Variation	SS	df	MS	F
Between Groups	104.26	2	52.13	2.55
Within Groups	1286.82	63	20.43	
Total	1391.08	65		

* **SS**- Some of Square, **df**- Degree of Freedom, **MS**- Mean Square, **F**- 'F' ratio.

The table showed that F-ratio of BF% had 2.55 which was smaller than the critical value. So on the basis of Body Fat percentage, there was no statistical significance among the students of three difference Zones of Tripura. Crombied et al., conduct a study on Weight and body-composition change during the college freshman year in male general-population students and army Reserve Officer Training Corps (ROTC) cadets [4]. In this study the researchers had not found any significant difference among the groups. So the finding of this study was supported to the present study.

5. Conclusion

Considering the limitations of the study with some other related factor like food habit or daily routine, the following conclusion were drawn:

1. The WHR or heart risk factor was in normal i.e. below from 0.95 (Standard level) of the students of all three Zone.
2. The Body Mass Index of all the students of three Zones was Normal i.e. 18.50-24.99.
3. Again the Body Fat Percentage of all the students of three Zones was Normal i.e. 6-13.

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