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Shivakumar S

Guest Faculty, DoS in Physical Education, Kuvempu University, Shankaraghata, Shivamogga, Karnataka, India

Vileep KS

Guest Faculty, DoS in Physical Education, Kuvempu University, Shankaraghata, Shivamogga, Karnataka, India

Study on BMI status of urban high school boys of Karnataka

Shivakumar S and Vileep KS

Abstract

Introduction: Body mass index (BMI) is a measure of weight adjusted for height, calculated as weight in kilograms divided by the square of height in meters (kg/m^2). Although BMI is often considered an indicator of body fatness, it is a surrogate measure of body fat because it measures excess weight rather than excess fat. Despite this fact, studies have shown that BMI is correlated to more direct measures of body fat, such as underwater weighing and dual energy x-ray absorptiometry. BMI is a simple, inexpensive, and noninvasive surrogate measure of body fat. In contrast to other methods, BMI relies solely on height and weight and with access to the proper equipment, individuals can have their BMI routinely measured and calculated with reasonable accuracy.

Purpose: The purpose of the study was to compare BMI status of urban high school boys among various academic divisions of Karnataka state.

Methodology: The purpose of the study was to compare BMI status of urban high school boys among various academic divisions of Karnataka state. The raw data pertaining to BMI status of urban high school boys from four academic divisions of Karnataka state were selected as subjects on random sampling technique. Totally 200 Subjects were selected, each 50 subjects from Gulbarga, Belgaum, Mysore and Bangalore academic division of Karnataka state. Subjects were selected between ages of 14 to 16 year. For assessing BMI status height and weight were selected as variables.

Results: To achieve the purpose of the study data collected was subjected to statistical analysis. The collected data was treated with One-Way ANOVA (Analysis of Variance) statistical technique to know the BMI status and compare among urban high school boys.

Conclusion: Within the limitations of the present study, the conclusions were drawn as there was a significant difference found in BMI status among urban high school boys between Gulbarga and Belgaum division, and Belgaum and Mysore division.

Keywords: BMI, High school, Urban and Academic division

1. Introduction

Body mass index (BMI) is a measure of weight adjusted for height, calculated as weight in kilograms divided by the square of height in meters (kg/m^2). Although BMI is often considered an indicator of body fatness, it is a surrogate measure of body fat because it measures excess weight rather than excess fat. Despite this fact, studies have shown that BMI is correlated to more direct measures of body fat, such as underwater weighing and dual energy x-ray absorptiometry.

BMI is a simple, inexpensive, and noninvasive surrogate measure of body fat. In contrast to other methods, BMI relies solely on height and weight and with access to the proper equipment, individuals can have their BMI routinely measured and calculated with reasonable accuracy.

Furthermore, studies have shown that BMI levels correlate with body fat and with future health risks. High BMI predicts future morbidity and death. Therefore, BMI is an appropriate measure for screening for obesity and its health risks.

Lastly, the widespread and longstanding application of BMI contributes to its utility at the population level. Its use has resulted in an increased availability of published population data that allows public health professionals to make comparisons across time, regions, and population subgroups.

Correspondence

Shivakumar S

Guest Faculty, DoS in Physical Education, Kuvempu University, Shankaraghata, Shivamogga, Karnataka, India

Obesity is a condition where the accumulation of body fat increases and results in harm to health. Despite being an ideal, this definition is difficult to apply due to the limited availability of easy to administer methods to evaluate body composition. Body mass index (BMI) is used to define obesity. The World Health Organization published the new child growth standards in 2006 and made information about BMI available in graphic and tables with percentile values and Z scores, simplifying their use at a population level. The increasing prevalence of obesity threatens the health of an increasing portion of the population. It is a challenge to health services and necessitates practical methods of diagnosis and monitoring that are low cost.

Lifestyle changes (a diet composed of industrialized, sugar and fat rich foods and the reduced consumption of fruits and vegetables) combined with little physical activity (increased television and videogame time and reduced practice of physical activity) in addition to lifestyle factors, contribute to the continual increase in the prevalence of overweight and obesity among children and adolescents.

2. Methodology

The purpose of the study was to compare BMI status of urban high school boys among various academic divisions of Karnataka state. The raw data pertaining to BMI status of urban high school boys from four academic divisions of Karnataka state were selected as subjects on random sampling technique. Totally 200 Subjects were selected, each 50 subjects from Gulbarga, Belgaum, Mysore and Bangalore academic division of Karnataka state. Subjects were selected between 14 to 16 year ages urban high school boys. For assessing BMI status height and weight were selected as variables.

3. Statistical Analysis

To achieve the purpose of the study data collected was subjected to statistical analysis. The collected data was treated with One-Way ANOVA (Analysis of Variance) statistical technique to know the BMI status and compare among urban high school boys.

4. Results and Discussion

Table 1: One Way Anova of BMI Status of Urban High School Boys among Various Academic Divisions

	Sum of Squares	Df	Mean Square	F
Between Groups	126.827	3	42.276	
Within Groups	1752.203	196	8.940	
Total	1879.029	199		4.73*

*Significant at 0.05 level.

F,0.05 (3,196) = 2.65

It is evident from table.1 that, F-ratio found to be significant in Body Mass Index among urban high school boys, as obtained F value is 4.73. It is more than the table value of 2.65 at 0.05 level of significance.

As the F-ratio was found significant in the Body Mass Index, least significant difference (LSD) post hoc test was carried out to find the significant difference between the paired means and presented in table 2.

Table 2: Post Hoc Analysis of BMI Status of Urban High School Boys among Various Academic Divisions

Group Means				
Gulbarga	Belgaum	Mysore	Bangalore	Mean difference
15.36	17.30			1.93*
15.36		15.42		.06
15.36			16.41	1.05
	17.30	15.42		1.88*
	17.30		16.41	.89
		15.42	16.41	1.01

The mean difference is significant at 0.05 level.

Post hoc test results presented in the table.2 reveals that, there was a significant difference found in Body Mass Index status among urban high school boys between the Gulbarga and Belgaum division, and Belgaum and Mysore division. Mean values depicts that there was a steady and linear deference in the Body Mass Index status of urban high school boys with respect to the academic division from Gulbarga, Belgaum, Mysore and Bangalore.

A comparison of mean of Body Mass Index status of urban high school boys is presented in figure.1.

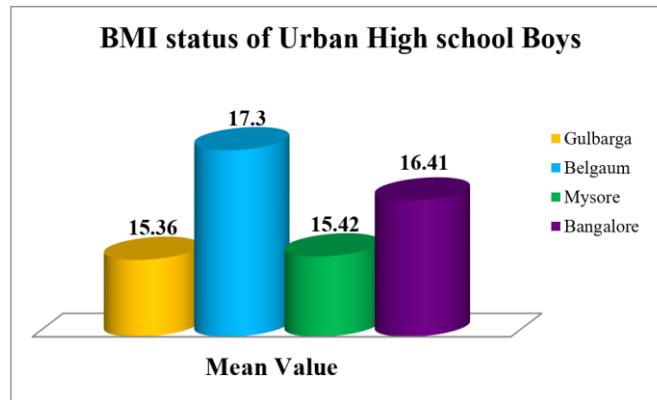


Fig 1: Comparison of Mean Value of BMI status among urban high school boys.

5. Conclusion

Within the limitations of the present study, the conclusions were drawn as there was a significant difference found in BMI status among urban high school boys between Gulbarga and Belgaum division, and Belgaum and Mysore division. But there is no significance between Gulbarga and Mysore, Gulbarga and Bangalore, Belgaum and Bangalore, and Mysore and Bangalore urban high school boys. Mean values

depicts that there was a steady and linear deference in the BMI status of urban high school boys with respect to the academic division from Gulbarga, Belgaum, Mysore and Bangalore.

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