

COMPARATIVE STUDY ON BODY COMPOSITION AMONG GOVERNMENT SCHOOL STUDENTS OF TRI-CITY

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Abstract:

The present study was designed to assess the Body Composition among male Government school students of tri-city. Total Eighteen hundred (N=1800) male subjects, which includes six hundred ($n_1=600$) government school Chandigarh, six hundred ($n_2=600$) government school Mohali and six hundred ($n_3=600$) government school Panchkula, who were studying in different government schools of Tri-city, during the session 2024-25. The simple random sampling technique was used to attain the objective of the study. The age of the subjects was ranged between 15 to 18 years. AAHPERD (1984) test developed by Russell R. Pate was used to measure the body composition of the subjects. Analysis of variance (ANOVA) was employed to assess Body Composition among male school students of Tri-city. The level of significance was set at 0.05. The result revealed significant difference among male school students of Tri-city.

Keywords: Body Composition, Chandigarh, Mohali and Panchkula, School Students.

INTRODUCTION

Health, Wellness and Physical Fitness are playing a vital role in the life of human. A healthy and physically fit individual can do his professional task and daily routine works without strain. Physical fitness has been considered as one of the most important aspects of human existence. A sound body and an active mind are inter-related. In other words physical fitness can also considered as that state of body, through which a person can do work for a longer duration without undue fatigue (Singh, 1991). The study of body composition in school-aged students represents a vital shift in pediatric health research, moving beyond the simplistic measurements of total body weight toward a more nuanced analysis of tissue distribution. While the medical community has long relied on the Body Mass Index (BMI) as a primary indicator of health, contemporary research highlights its limitations. For students in a state of constant physiological flux, understanding these specific components is essential for assessing physical development, nutritional status, and the long-term risk of metabolic diseases. The school environment serves as a critical laboratory for observing these changes, as it is the primary site for physical education and dietary habits during a child's formative years. Furthermore, the assessment of body composition in schools is increasingly linked to academic and psychological performance. Studies suggest that a healthy ratio of lean mass to fat mass is

often correlated with improved cognitive function and higher self-esteem among adolescents. Conversely, high levels of adiposity are frequently associated with systemic inflammation and sedentary behaviors that can impede a student's ability to focus and engage in the classroom. By focusing on "compositional health" rather than just a number on a scale, researchers can develop more targeted interventions—such as weight-bearing exercise programs to increase nutritional programs to support muscle protein synthesis that cater to the specific needs of a growing population. Ultimately, investigating the body composition of school students is about more than identifying obesity or malnutrition; it is about establishing a foundation for lifelong health literacy. As digital lifestyles and processed food consumption become more prevalent, the baseline for "normal" growth is shifting. Providing a comprehensive introduction to this topic in a research context requires an acknowledgment of the socio-economic, environmental, and biological variables that dictate a student's physical trajectory. By analyzing how muscle and bone develop alongside fat, researchers can better understand the holistic growth of the child, ensuring that school-based interventions are both effective and scientifically grounded. Body composition is the percentage of a body's weight that is fat tissue. Body composition is the body's amount of fat relative to fat-free mass. Individuals with optimal body composition are typically healthier, move more easily and efficiently and generally feel better. Health-related physical fitness indicates that "biological systems of the body are healthy and work properly, allowing you to participate in strenuous duties and recreational activities. It is termed "health related" because there is an implied relationship between one's level of fitness and one's health status. Research has demonstrated that individuals with high levels of physical fitness also possess good health. To improve overall fitness, an individual has to participate in specific programs to develop each one of the five basic components are Cardiovascular Endurance, Muscular Strength and Endurance, Flexibility, Body Composition (Yobu, 2010). There are five parts of health related fitness to be specific muscular strength, muscular endurance, cardio respiratory endurance, flexibility and body composition" (Singh, 1991).

OBJECTIVES OF THE STUDY

To assess significant difference with regard to Body Composition among male Government school student of Tri-city (Chandigarh, Mohali and Panchkula).

HYPOTHESIS OF THE STUDY

It was hypothesized that there would be no significant difference on Body Composition among male Government school students of Tri-city (Chandigarh, Mohali and Panchkula).

METHODOLOGY:

The sample consists Eighteen hundred (N=1800) male subjects, which includes six hundred ($n_1=600$) government school Chandigarh, six hundred ($n_2=600$) government school Mohali and six hundred ($n_3=600$) government school Panchkula, who were studying in different government schools of Tri-city, during the session 2024-25. All the subjects, after informed about the objective and protocol of the study, gave their consent and volunteered to participate in this study. The age group of subjects was ranged between 15-18

years. The simple random sampling technique was used to attain the objective of the study. The Body Composition (AAPHER test) was applied to assess the Body Composition among male Government school students of Tri-city. Analysis of variance (ANOVA) was employed to assess significant difference on the variable body composition among male Government school students of Tri-city. The level of significance was set at 0.05 to test the hypothesis.

RESULTS

Table-1: Descriptive Statistics Analysis of Body Composition among Government Senior Secondary School Students of Tri-city

Sr. No.	Groups	N	Mean	Std. Deviation	Std. Error Mean
1	Govt. School Chandigarh	600	14.89	2.55	.10
2	Govt. School Mohali	600	14.23	2.28	.09
3	Govt. School Panchkula	600	14.07	2.29	.10
	Total	1800	14.40	2.53	.05

The above table-1 depicts that the result of Government Senior Secondary School Students of Tri-city on the Variable Body composition. The Mean, S.D. and S.E. scores of male Government school students of Chandigarh are 14.89, 2.55 and .10 respectively. Moving to Mohali the Mean, S.D. and S.E. scores are 14.23, 2.28 and .09 respectively. Finally, in case of Panchkula the Mean, S.D and S.E score are 14.07, 2.29 and .10 respectively.

Table-2: One-Way (ANOVA) results with regard to Chandigarh, Mohali and Panchkula on the Variable Body Composition

Source of variance	Sum of square	Df	Mean square	F-ratio	Sig.(p-value)
Between groups	226.72	2	113.36	19.77	.000*
Within groups	10303.87	1797	5.73		
Total	10530.59	1799			

*Significant at 0.05 level

It can be observed from table-2 that significant different were found with regard to the variable Body Composition test among Government Senior Secondary School Students of Tri-city i.e. Chandigarh, Mohali and Panchkula. The P-value (Sig.) .000* was found lesser than the 0.05 level of significance ($p < 0.05$), therefore, there was need to apply LSD post-hoc test to see the degree and direction of differences. The results of the Post-hoc test have been presented in table - 3.

Table-3: Analysis of Least Significant Difference (LSD) Post-hoc test among Government school students of Tri-city (Chandigarh, Mohali and Panchkula) with regard to variable Body Composition

Group (A)	Group (B)	Mean difference	Sig.
Chandigarh (Mean= (14.89))	Mohali	.66	.00
	Panchkula	.82	.00
Mohali (Mean= (14.23))	Chandigarh	-.66	.00
	Panchkula	.16	.24
Panchkula (Mean= (14.07))	Chandigarh	-.82	.0
	Mohali	-.16	.24

A glance at table-3 showed that the mean difference between Chandigarh and Mohali groups was found 66. The p-value (sig).00 showed that the Chandigarh group had demonstrated significantly high level of body Composition than their counterpart Mohali group.

The mean difference between Chandigarh and Panchkula groups was found .82. The p-value (sig).00 showed that the Chandigarh group had demonstrated significantly high level of body Composition than their counterpart Chandigarh group.

The mean difference between Mohali and Panchkula groups was found .16. The p-value (sig).24 showed that the Mohali group had demonstrated insignificantly better in body fat than their counterpart Panchkula group. The graphical representation of mean scores exhibited in figure-1

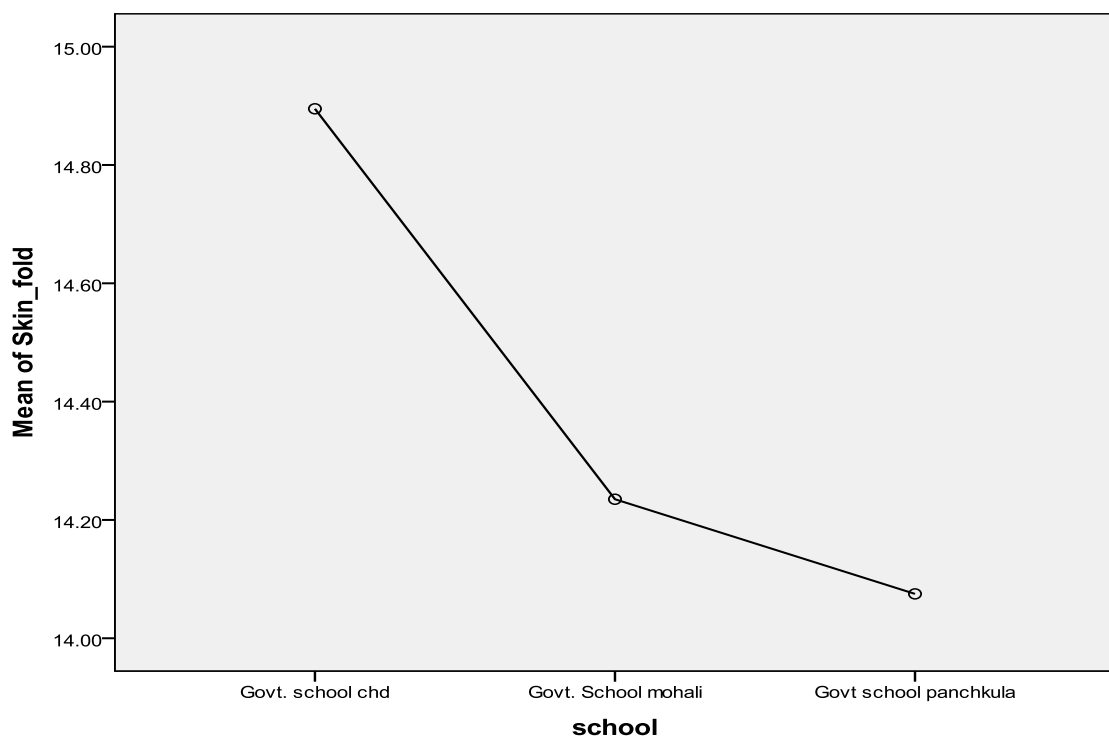


Figure-1 Graphical representation of mean scores with regard to the variable Body Composition among Government Senior Secondary School Students of Tri-city.

DISCUSSION OF FINDINGS:

It has been observed from (tables - 1 to 3) that significant differences have been found among male government school students of Tri-city (Chandigarh, Mohali and Panchkula) with regard to variable body composition. While calculated the mean values of among the groups, it has been observed that government school students Chandigarh group had exhibited better body composition, than Mohali and Panchkula school students.

Gill et al. (2010) had conducted a study to compare physical fitness components namely speed, strength, endurance, agility, body composition and flexibility between female students belonging to rural and urban area. The result shows that urban female students were found to be superior in body composition. **Nara (2017)** had carried out a study on body composition between basketball and football players of Haryana. The result shows that football players were found to be superior in body composition.

CONCLUSION:

It is concluded that significant differences have been found among male government school students of Tri-city (Chandigarh, Mohali and Panchkula) with regard to variable body composition. While calculated the mean values among the groups, it has been observed that government school students Chandigarh group had exhibited better Body composition than Mohali and Panchkula. Further Mohali had better results than Panchkula Government school students.

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