November 2015 IJRSS Volume 5, Issue 4 ISSN: 2249-2496

# AN ASSESSMENT OF BODY MASS INDEX AMONG GOVERNMENT SCHOOL GIRLS OF CHANDIGARH, HARYANA AND HIMACHAL PRADESH

**Reeta***

**Dr. Thingnam Nandalal Singh****

**Abstract**

*The purpose of the study was to compare body mass index (BMI) among government school girls of Chandigarh, Haryana and Himachal Pradesh. To attain the objective of the study, a total sample of three thousand (N=3000) school girls (one thousand school girls each from Chandigarh, Haryana and Himachal Pradesh) were selected as subject of the study by using stratified random sampling technique. Height and weight were taken to calculate the body mass index (BMI) among school girls. The age of the subjects ranged between 15-18 years. To find out the significance differences among school girls on body mass index, analysis of variance (ANOVA) was computed with the help of SPSS software. Further scheffe's post-hoc test was used to see the direction and significances of differences where 'F' ratio was found significant. The level of significance chosen was .05. Statistical calculation on the gathered data showed that significant difference was found on body mass index (BMI) among government school girls of Chandigarh, Haryana and Himachal Pradesh. The finding reveals that Chandigarh school girls have higher BMI mean value than Haryana and Himachal Pradesh school girls*. Whereas, Himachal Pradesh school girls found in mild thinness category of underweight.

**Keywords**: Height, Weight, BMI, Chandigarh, Haryana, Himachal Pradesh, School Girls.

* Research Scholar, Department of Physical Education, Panjab University, Chandigarh

** Assistant Professor, Department of Physical Education, Panjab University, Chandigarh

## Introduction

Comparison of Body Mass Index is a useful marker for energy imbalance and associated variations across populations. High BMI is associated with cardiovascular and metabolic diseases, whereas low BMI is associated with increased mortality. BMI comparisons across geographical locations may give us indication as to which direction the public health policies should head and what could be the corrective approach towards a more balanced and healthier energy level. *(Center for Social Development, 2011).*

Overweight and obesity has the hallmarks of a major public health problem: it is common and rapidly becoming more common, and it is attended by diverse and substantial threats to health. Overweight and obesity is widely recognized as one of the most significant threats to the health of the Australian population, particularly young people, and a determined effort to understand the problem and to develop and implement effective prevention and treatment programs is clearly warranted. The most direct causes of overweight are inadequate physical activity and/or a diet that contains more energy than the amount of activity being done requires. Therefore, effective interventions must promote greater physical activity and healthier food habits among young people. Internationally, the World Health Organization has been raising the issue of 'globesity' for some time, and has developed the Global Strategy on Diet, Physical Activity and Health. *(WHO, 2004).*

## Objective of the Study

The objective of the study was to compare the body mass index (BMI) among government school girls of Chandigarh, Haryana and Himachal Pradesh

## Methodology

A total of three thousand (N=3000) school girls *(one thousand school girls each from Chandigarh, Haryana and Himachal Pradesh)* were selected as subject of the study by using stratified random sampling technique.

For the purpose of the study, height and weight was taken to calculate the body mass index among school girls. The age of the subjects ranged between 15-18 years. To find out the significance differences among school girls on body mass index (BMI) analysis of variance (ANOVA) was applied. Further scheffe's post-hoc test was used to see the direction and significances of differences where 'F' ratio was found significant. For testing hypothesis, the level of significance chosen was 0.05.

## Findings

Descriptive analysis of body mass index (BMI) among government school girls of Chandigarh, Haryana and Himachal Pradesh is presented in table-1.

**Table-1**

**Descriptive Analysis of Chandigarh, Haryana and Himachal Pradesh Government School Girls on Body Mass Index**

| State/UT | N | Mean | SD |
|---|---|---|---|
| Chandigarh | 1000 | 20.35 | 3.430 |
| Haryana | 1000 | 18.62 | 2.584 |
| Himachal Pradesh | 1000 | 18.01 | 2.578 |
| Total | 3000 | 19.00 | 3.057 |

It is evident from the above table-1 that the government school girls of Chandigarh have higher BMI mean value (20.35) when compared with government school girls of Haryana (18.62) and Himachal Pradesh (18.01) on body mass index.

The analysis of variance (ANOVA) among Chandigarh, Haryana and Himachal Pradesh government school girls on body mass index is presented in Table -2.

**Table-2**

**The Analysis of Variance (ANOVA) among Chandigarh, Haryana and Himachal Pradesh Government School Girls on Body Mass Index**

| Variable | Source of Variance | Sum of Squares | df | Mean Square | F |
|---|---|---|---|---|---|
| Body Mass Index (BMI) | Between Group | 2949.04 | 2 | 1474.52 | 176.21* |
| | Within Group | 25077.04 | 2997 | 8.368 | |
| | Total | 28026.51 | 2999 | | |

***Significant at .05 level***

$F_{.05}$ ***(2, 2997) = 3.00***

Table-2 clearly indicates that there was significant difference among Chandigarh, Haryana and Himachal Pradesh government school girls on body mass index (BMI), since the obtained 'F' value at 0.05 level was 176.21 whereas, value needed to be significant was 3.00. To find out the paired mean differences where F test is significant the Scheffe's Post-Hoc test was employed and the data pertaining to this is presented in table-3

**Table: 3**

**Significant Differences among Paired Means on BMI among Chandigarh, Haryana and Himachal Pradesh School Girls**

| GROUPS | | | MEAN DIFFERENCE | Sig. |
|---|---|---|---|---|
| Chandigarh | Haryana | Himachal Pradesh | | |
| 20.35 | 18.62 | | 1.73* | .000 |
| 20.35 | | 18.01 | 2.34* | .000 |
| | 18.62 | 18.01 | 0.61* | .000 |

Table 3 clearly indicates that the significant differences existed between Chandigarh and Haryana government school girls, Chandigarh and Himachal Pradesh government school girls, Haryana and Himachal Pradesh government school girls on body mass index (BMI) since the value obtained were 1.73, 2.34 and .61 respectively.

Mean scores of Chandigarh, Haryana and Himachal Pradesh government school girls on body mass index is graphically depicted in figure-1.

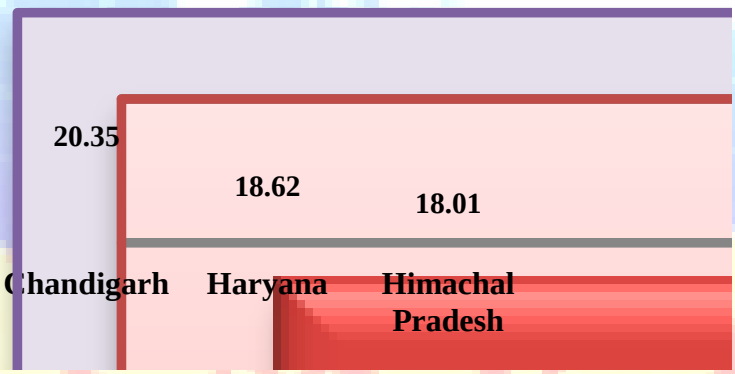


**Fig: 1. Graphical Representation for Body Mass Index (BMI) among Chandigarh, Haryana and Himachal Pradesh Government School Girls**

## Discussion of Findings

The finding of the study showed that there was a significant difference among Chandigarh, Haryana and Himachal Pradesh government school girls on body mass index (BMI). Chandigarh school girls have higher mean value than Haryana and Himachal Pradesh school girls. Himachal Pradesh school girls have the lowest mean value. This may be due to that health of people residing at high altitude is shaped by population ancestry socio-cultural determinants as well as nutritional factors. Such anthropometrical difference may be due to their life style in hilly areas which require extra energy expenditure for daily activities resulting in such changes. one of the cause of increased thinness may be due to the fact that at this age group the children may not be at direct parental care and may have indulge on their own daily habits which may not be sufficiently healthy enough to provide proper nutrition. Results of the several

study showed that body mass index affected by genetic makeup, diet, exercise and socio-economic and socio-cultural background *(Pramanik et al. 2014, Chauhan 1989, Hussain et al. 2013, Biswas 2014).* Hence, the three different state's school girls were differed significantly.

## Conclusion

In the light of the findings and limitations of the present study the following conclusions were drawn:

1. Significant difference was found among Chandigarh, Haryana and Himachal Pradesh government school girls on body mass index.
2. Chandigarh government school girls have the higher mean value than Haryana and Himachal Pradesh government school girls.
3. Himachal Pradesh government school girls were found mild thinness categories of underweight.

## References


1. **Biswas, R., Saini, N., Kaur, J. (2014).** *Anthropometric Assessment of Growth and Nutritional Status of School Going Boys of Himachal Pradesh*. International Journal of Scientific Research. 3 (11), 2277-8179.
2. **Chauhan, M. (1989).** *Comparative Study of Somatotype Motor Fitness and Selected Physiological Variables of Sports and Non-Sports School Girls at Different Altitudes*. Unpublished Ph.D. Thesis, Panjab University, Chandigarh.
3. **Center for Social Development Washington University Inst. Louis (2011).** *Understanding Geographic Variations in BMI in India.*
4. **Fahey, D. T., Insel, M. P., Roth, T. W. (2005).** *Fit & Well: Core Concepts and Labs in Physical Fitness and Wellness.* (6th Edition). USA, Mc Graw Hill.
5. **Henry J. M. (1978).** *Measurement of Body Fatness: An Introduction to Measurement in Physical Education.* Massachusetts, Allyn and Bacon Inc.
6. **Hussain, I., Ahmad, A., Mohammad, A., Ali, Z. (2013).** *Anthropometric Profile of School Children Belonging to Different Regions of Himachal Pradesh*. European Academic Research, I (4), 396-401.
7. **Pramanik, P., Banerjee, S. B., Ghosh, A. (2014).** *Lifestyle and Nutritional Status of School Going Adolescent Girls in a Semi Urban Area of West Bengal, India*. Journal of Dental and Medical Sciences. 13 (3), 37-42.
8. **WHO (2004).** *Global Strategy on Diet, Physical Activity and Health*, Geneva: WH0.