

A comparative Study of Cardio Respiratory Endurance among Girls of Uttar Pradesh

Dr. Gunjan Shahi

MBP Govt. PG College Lucknow

Dept. of Physical Education

Abstract: The purpose of the study was to compare the Cardio Respiratory Endurance among girls of urban, semi urban and rural government schools of Uttar Pradesh. In this study total four hundred fifty girls were selected as a subject from different areas of Uttar Pradesh which were Urban, semi urban, and rural (three groups). The subjects were selected following procedure of random selection. The average age of the subject was from 12 to 15 years. The subjects might belong to different socio economic groups and their background in terms of health variables.

Study was delimited to measurements of the major components of health related physical fitness that is Cardio Respiratory Endurance. The measurements were taken with the help of field test by 12 min Run and Walk.

The findings of the study reveals that according to the analysis of data presented in table 1, it was evident that there was a significant difference among three groups that are urban, semi urban and rural in health related physical fitness components of Cardio Respiratory Endurance. The results clearly show that the group (III), Rural Government School showed the best result in Cardio Respiratory Endurance in comparably of other groups.

Key words: Health Related Physical Fitness components, Cardio Respiratory Endurance, 12 min Run Walk Test , Urban , Semi urban, Rural.

Introduction:

“Good health is man’s priceless treasure, if one does not posses good health,

can not enjoy success, prosperity and other life’s comforts.”

Health is a fundamental right of an individual and consider as a state of physical, mental, social and spiritual well being. A girl can live longer and can derive maximum benefit from being in a state of good health. A healthy person is not only a boon to himself, but also to his nation and world at large. Health is the foundation head of beauty, courage, tolerance, joy, power, peace, prosperity and creativity. Besides all the sufferings that unhealthy woman undergoes which force her to live a cheerless life of depression, disease, frustration etc., she also pollutes the atmosphere around her with her negative thoughts and affects many more mind with her contagious melancholy.[1]

The health is largely responsible for determining one's quality of life. If one is responsible healthy person, she may be repeated to remain so if she continues good health through self discipline. Physical health helps to determine mental health and vice versa. If a student has defect she can overcome through her hygiene courses, physical education, sports and mental advice. Thus she can maintain her health status is doubly important to her. The status of cheerfulness becomes even more necessary. She should be one of those fortunate individuals with nothing physically and mentally wrong with her now; her future happiness depends on what she does to keep her good fortune of health status. [2]

There are many factors which may effect on girls participation in games and sports. There are many reasons like – 1) There is a lack of orientation of the people living in Indian society taking part in games and sports for girls has not became a common phenomenon. 2) Whatever little facilities for games and sports are available to girls, they are confined to urban areas. The rural girls are deprived of taking benefits of such facilities. 3) The habit of participation in games and sports is not inculcated systematically in rural areas.4) There is a general superstition among the people that girls' participation in games and sports causes loss of femininity . The participating girls might look Tom boys. 5) The girls in our society of rural areas have to look after the family household jobs to be good wives. 6) The male dominating society assumes that the personality of women should be submissive introvert, delicate, sensitive, tolerant, shy, week and sincere.[3]

Schools are in a uniquely favorable position to increase physical activity and fitness among their students. This policy statement reaffirms the American academy of pediatrics' support of the effort of schools to include increased physical activity in the curriculum, suggests ways in which schools can meet their goals in physical fitness, and encourages pediatricians to offer their assistance. The recommendation in these statements are consistent with those published in 1997 by the centers for disease control and prevention. Scientific evidence shows that loss of functional capacity and increased morbidity and mortality and attributable to chronic disease and injury are associated with a sedentary lifestyle in adults. A primary goal of activity programs for youth is to promote physically active lifestyle that will be carried into adulthood and reduce health problems related to inactivity. Some of the health benefits of regular physical activity during childhood and adolescence may be realized before adulthood. Cross-sectional studies have shown an association between higher activity levels and lower levels of body fat, increased bone mineral mass, and lower levels of tobacco and alcohol use. Exercise has been successfully used in conjunction with other interventions to treat obesity, hypertension, and other chronic diseases. Some of these programs using exercise or physical activity have been successfully implemented in the school setting. The development of a physically active lifestyle is a goal for all children. Traditional team and competitive sports may promote healthy activity for selected youth. Individual sports, Non-competitive sports, Lifetime sports, and recreational activities expand the opportunity for activity to everyone. The opportunity to be active on a regular basis, as well as the enjoyment and competence gained from activity, may increase the chances that physically active lifestyle will be adopted.

Health related physical fitness focuses on optimum health and prevents the onset of disease and problems associated with inactivity. Maintaining an appropriate level of health related fitness allows a person to : Meeting emergencies; reduce the risk of disease and injury; work efficiently; participate and enjoy physical activity (sports, recreation, leisure) and look one's physical best.[4]

Review of Related Literature:

Le Masurier[5] The purpose of the study was (I) Determine the step /day accumulated by middle school student(grade7 to 8) and (II) Determine if participants differing in aerobic fitness also different in accumulated step/day. Participant included 2 to 3 students from 7th grade (n=111;57male and 54female) and 8th grade (n=112;54 male and 58female). Participants accumulated four days of sealed pedometer data and perform the FITNESSGRAM pacer test. Males accumulated significantly more step/day, Females (11,589+_) 2517 steps/day, high fit participants significantly more steps per day.

Paula Roldao da Silva[6] Examined relationships between health-related physical fitness indicators and clustered cardio metabolic risk factors in adolescents between 2014 and 2017. The results of cross-sectional analysis indicated that muscle fitness (*curl-up*: $\beta = -0.37, p < 0.001$; *push-up*: $\beta = -0.38, p < 0.005$) and cardiorespiratory fitness ($\beta = -0.56, p < 0.001$) were inversely associated with clustered cardio metabolic risk, with BMI positively associated ($\beta = 0.58, p < 0.001$). In the longitudinal analysis, cardiorespiratory fitness ($\beta = -0.33; p < 0.005$) and body fat ($\beta = 0.46, p < 0.001$) demonstrated a significant association with clustered cardio metabolic risk. However, no significant associations between the health-related physical fitness and clustered cardio metabolic risk were observed after adjustment for baseline values.

Their cross-sectional findings highlight the importance of health-related physical fitness indicators to adolescents. In regarding the longitudinal analysis, further studies are needed in order to clarify the influence of physical fitness in the adolescence and cardio metabolic risk later in life.

Hypothesis: It was hypothesized that there would not be significant difference in health related physical fitness components among girls of rural , urban, and semi urban government school of Uttar Pradesh.

Delimitations:

- 1- The study was delimited to female subjects only.
- 2- Study was further delimited to the group of 12-15 years age.
- 3- The study was further delimited to the rural, urban and semi urban government schools only.

Administration of the test:

To find out the Cardio Respiratory Endurance scholar had taken **Cooper's 12 min** Run/walk test.

Definition and Explanation:

- **Cardio Respiratory Endurance:** It is the ability of the blood vessels, heart and lungs to take in, transport, and utilize oxygen. This is a critically important component of fitness because it impacts other components of fitness and decreases the risk of cardio vascular diseases. Cardio respiratory endurance has been defined as the ability of the circulatory and respiratory system to adjust to vigorous exercises and to recover from the effect of that endurance.[8]
- **Government Schools:** In India government schools are those which for the education of the children of a community, district, village, city etc and that constitute a part of a system of a free public education commonly including primary and secondary level education.
- **Urban Government Schools:** Schools which are situated in cities called urban Government Schools.
- **Semi urban Government Schools:** Schools which are situated just outside of the city or town called Semi urban Government Schools
- **Rural Government Schools:** Schools which are situated in the village known as rural government schools.

Analysis of the data and Result of the study:

The necessary data was collected by administrating the test. After collecting data from four hundred and fifty girl subjects were analyzed by utilizing descriptive statistics including mean, SD, analysis of variance. The subjects were selected randomly into three equal groups consisting of one hundred fifty subjects each belonging to group that is urban, semi urban, and rural. The data on selected criterion measure for all the three groups were collected under similar conditions.

Analysis of variance was applied with regards to three groups, pre-test randomized group design was applied in this study. The difference between means of the groups at pretest was taken into account by the process of application of ANOVA, to test for significance at 0.05 levels.

Table 1**Analysis of Variance of Cardio Respiratory Endurance among Girls of Different Schools**

Source of variance	Degree of freedom (df)	Sum of Squares (SS)	Mean Squares (MS)	F-Ratio
Between the group	2	6501895.111	3250947.556	31.019*
Within the group	447	46848020.667	104805.415	

*Significant at 0.05 levels $F - \text{Ratio } 0.05 (2, 447) = 4.66$

Table revealed that there was significant difference in the different type of government schools of girls in relation to Cardio Respiratory Endurance as obtained $F - \text{ratio}$ was 31.019 which was higher value than the tabular valued 4.66, required for $F - \text{ratio}$ to be significant.

Since the one way analysis of variance was found significant in relation to Cardio Respiratory Endurance, the least significant difference (LSD) test was applied to find out which of the differences of the means amongst the girls of different type of government schools were statistically significant .

Table2

Post-Hoc Test for the Means of Different Types of Government Schools in Relation to Cardio Respiratory Endurance

Means (M)			Mean Difference (MD)	Critical Difference (CD)
I Urban	II Urban	III Urban		
1294.53	1498.53		204.00*	

1294.53		1580.40	285.87*	59.82
	1498.53	1580.40	81.87*	

*Significant at 0.05 levels

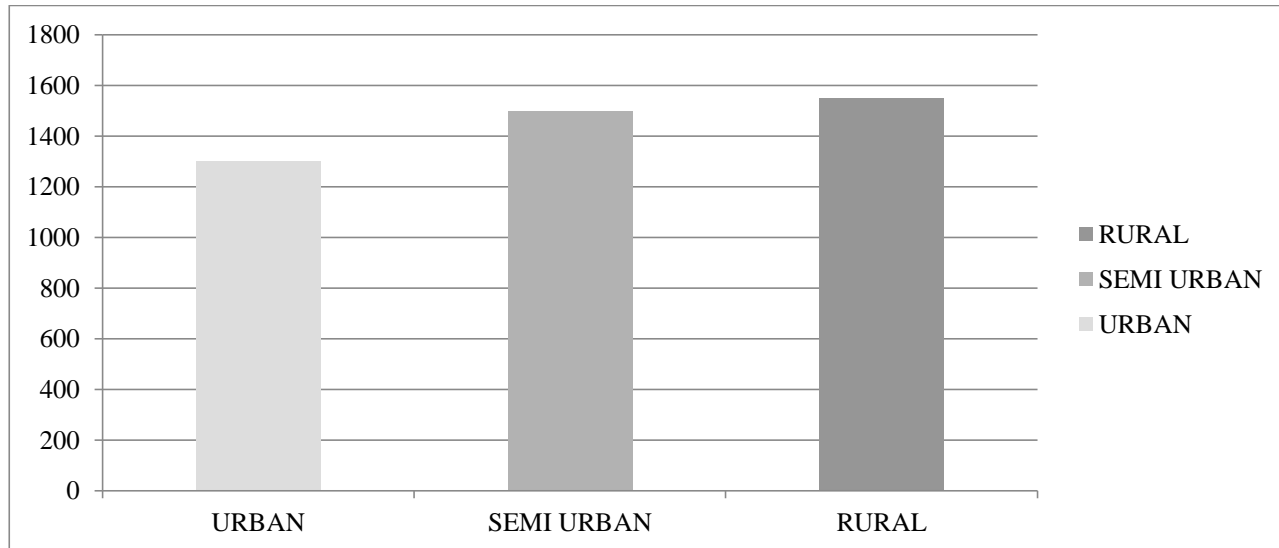
It is evident from table-2 that mean difference of all different type of government schools in relation to Cardio Respiratory Endurance was found to be significant between Girls of Urban Government Schools and Semi Urban Government Schools, Urban Government Schools and Rural Government Schools, Semi Urban Government Schools and Rural Government Schools.

Further while comparing the mean difference between group I (Urban Govt. School), group II (Semi Urban Govt. School), group III (Rural Govt. School) a greater difference (285.87) was found in case of group I and group III. Thus it can be concluded that the health related physical fitness component of Cardio Respiratory Endurance is found better in rural government schools. The sequence of means performance in **Cardio Respiratory Endurance** is found better in **Rural Govt. Schools > Semi Urban Govt. Schools > Urban Govt. Schools.**

The graphical representation of post-hock test means of Cardio Respiratory Endurance of different type of government schools is presented in figure 1

Post Test Means of Different Types of Government Girl's Schools in Relation to Cardio Respiratory Endurance

Figure-1\\



REFERENCES:-

1. G.S.Maurya “ Holistic Approach of yoga” publisher Aditya Bina (MP) 1998, PP.09
2. Dr. Rekha Chaubey, Dr. Nishi Prakash An article published in proceeding, Kanpur,2008 , pp.63
3. Shiva Kumar ,k.Nair,D Sreeramulu, P Suryanarayana, “Effect of micronutrient supplement on health and National status of children” journal biochemical status nutrition volume 22 ,issue 1 ,pages S15-S25B.
4. Roger Ludlow and G.jackson (1985)” **A Family Guide to Fitness and Exercise,” London; Salomonder Books ,pp32**
5. Le Masurier, “Physical Activity and Aerobic Fitness Level of Middle School Students”, Dissertation Abstracts International Vol.65 No.2 (Aug. 2004)
6. PaulaRoldão da Silva^a, Géssika Castilho dos Santos, ^aJadson Marcio da Silva, ^aWayne Ferreira de Faria, ^bRaphael Gonçalves de Oliveira, ^b Antonio Stabelini Neto^{ab}” “ Health-Related Physical Fitness Indicators and Clustered Cardio Metabolic Risk Factor in Adolescents: A Longitudinal Study”, General of Exercise & Fitness (Vol. 18, Issue 3, Sept. 2020, Pg.162-167)
7. Phillips and Hornak.” Measurements and Evaluation in Physical Education”p.23,1989