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A SURVEY OF HEALTH-RELATED PHYSICAL FITNESS AMONG SCHOOL CHILDREN OF MAHARASHTRA

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ABSTRACT:

The problem of the present research was entitled as ***Health Related Physical Fitness among School Children of Maharashtra.*** To examine the health related physical fitness between boys of private school of urban and rural region. To scrutinize the health related physical fitness between government school boys of urban and rural region. To find out the health related physical fitness between boys of government school and boys of private school of rural region. To explore the health related physical fitness between government school boys and private school boys of urban areas. To find out health related physical fitness among various age groups of rural government school boys. To explore health related physical fitness among various age groups of rural private school boys. To explore the health related physical fitness among various age groups of urban government school boys. To scrutinize the health related physical fitness among various age groups of urban private school boys.

Based on different research findings, professional's opinion and researcher's own understanding of the problem, following hypotheses were formulated: It was speculated that there would be no significant difference in health related physical fitness between private school boys of urban and rural areas. It was hypothesized that there would be no significant difference in health related physical fitness between government school boys of urban and rural areas. It was conjectures that there would be no significant variation in health related physical fitness government school boys and private school boys of rural areas. It was surmises that there would be no significant variation in health related physical fitness between government school boys and private school boys of urban areas. It was hypothesized that there would be no significant variation in health related physical fitness among different age group of rural government school boys. It was speculated that there would be no significant variation in health related physical fitness among different age group of rural private school boys. It was surmises that there would beno significant variation in health related physical fitness among different age group of urban government school boys. It was conjectures that there would be no significant variation in health related physical fitness among different age group of urban private school boys.

The study was confirmed to the 2000 school boys of Maharashtra. The age of all subjects was ranged from 13 to 17 years. The study was delimited to the following types of schools. a. Government School (Rural and Urban) b. Private School (Rural and Urban) The study was delimited to four districts of Maharashtra namely Pune, Solapur, Ahemadnagar, Satara and Sangli. The study was delimited to the following selected Health Related Physical Fitness variables: cardiovascular fitness, body composition (body fat percentage), abdominal muscular strength, Flexibility. The result of the study will suggest the quality of being significant and the influence of the study on the mass of the society such as sports scientists, physical education teachers, players and coaches in the following way.

It was a survey type study focused on to scrutinize the health related physical fitness among school children of Maharashtra. The subjects for this study were from the state of Maharashtra. The simple random sampling was used in the study. A total number of Two Thousand (2000) subjects were selected from the Rural and Urban part of Maharashtra. Moreover, subjects were also selected from different schools (Private and Government) of Maharashtra. These 2000 students of both the groups were further divided into four groups (125 in each group) according to their respective age groups i.e. 13 to 14, 14 to 15, 15 to 16 and 16 to 17 years. Based on literary evidence, correspondence with the expert and the scholar's own understanding the following variables were selected for this study. **Health Related Physical Fitness:** The four components of Health-related physical fitness that are commonly evaluated include: 1. Cardiovascular fitness. 2. Body composition (Body fat percentage). 3. Abdominal muscular strength and endurance. 4. Flexibility.

KEYWORDS:

INTRODUCTION

In the present time of science and innovation individuals are getting to be caution about their health and physical fitness. Every country is urging amusements and sports to get zenith execution at worldwide level. The standard of amusements and sports has increased new statures in

each nation. Our nation is additionally attempting to get the great outcome that is the reason physical training has been presented as a piece of school educational programs, which will assist the understudies with keeping them solid and physically fit. Physical wellness is a term, which has distinctive implications for various individuals. For a straightforward man, to have a decent constitution is an image of physical wellness. For a specialist, legitimate working of different imperative frameworks of our body is physical wellness. All things considered physical wellness of an individual might be disclosed as the ability to do the normal exercises without getting undue weariness, to meet crises, to confront pressure circumstances and still have more vitality to improve recuperation process.

A fundamental step in the avoidance and control of obesity is the identification of risk factors contributing to the hasty increase of obesity. Relevant research in this area, in India is minimal and the data available is mostly not in agreement and often based on statistically inadequate sample size, making it difficult to assess the occurrence of overweight and obesity at state level, in relation to a wide age range of children (13-17 years). During the scanning of relevant literature for the proposed topic, not a single study was found, revealing the facts about health related physical fitness among school children of Maharashtra. Therefore, it was proposed to carry out a study on Health Related Physical Fitness among School Children of Maharashtra.

METHOD AND PROCEDURE.

The subjects for this study were from the state of Maharashtra. The simple random sampling was used in the study. A total number of Two Thousand (2000) subjects were selected from the Rural and Urban part of Maharashtra. Moreover, subjects were also selected from different schools (Private and Government) of Maharashtra. These 2000 students of both the groups were further divided into four groups (125 in each group) according to their respective age groups i.e. 13 to 14, 14 to 15, 15 to 16 and 16 to 17 years.

CRITERION MEASURES

SR.NO	TEST ITEMS	TOOLS
1	Cardiovascular fitness	Cooper 12 Min Run/Walk
2	Body composition (Body fat percentage)	Skin Fold Calipers
3	Abdominal muscular strength and endurance	Sit up
4	Flexibility.	Sit and Reach Test

TESTER COMPETENCY.

To ensure that the scholar was well versed with techniques of conducting the tests, the scholar had a number of trial practice sessions in testing procedure under the guidance of experts. Tester‟s competency was established by test retest method whereas consistency of result was obtained by product moment correlation. The data collected from a 100 students by test-retest process were computed for each variable are presented in the following table.

RELIABILITY COEFFICIENTS OF TEST-RETEST SCORES.

SR.NO	TEST ITEMS	COEFFICIENT OF CORRELATION, R
1	Cardiovascular fitness	.97
2	Body composition (Body fat percentage)	.98
3	Abdominal muscular strength and endurance	.92
4	Flexibility	.99

STATISTICAL TECHNIQUES EMPLOYED

For determining the health related physical fitness of school children, descriptive statistics was applied. To investigate the significance of mean difference between rural and urban school „t‟-test was applied.

To investigate the significance mean difference among private and government schools of rural and urban areas, analysis of variance (ANOVA) was applied. Further analysis of variance (ANOVA) was also applied to determine the significant difference among the different four age groups of rural and urban school. When „F - Test‟ value was found significant then LSD Post-Hoc test was applied. Data was analyzed with the help of Statistical Package for the Social Sciences (SPSS) 17.0. The level of significance was set at 0.05 percent ($p<0.5$).

TABLE 4.1
COMPARISON OF MEAN AND S.D. FOR CARDIOVASCULAR FITNESS IN DIFFERENT TYPES OF SCHOOL BOYS

Group	N	Mean	SD	't' value
Rural Govt.School boys	500	1986.97	135.83	7.6539*
Rural Private School boys	500	1919.98	140.89	
Urban Govt.School boys	500	1952.59	149.97	5.9654*
Urban Private School boys	500	1897.90	139.80	
Rural Govt.School boys	500	1986.97	135.83	3.7986*
Urban Govt.School boys	500	1952.59	149.97	
Rural Private School boys	500	1919.98	140.89	2.4878*
Urban Private School boys	500	1897.90	139.80	

't' value at $_{0.05}(998)$ =1.962

Table 4.1: represent the Mean and SD values of cardiovascular fitness between Rural Govt. School boys and Rural Private School boys were 1986.97±135.83 and 1919.98±140.89 respectively. The obtained "t" value 7.6539 (1.962) was found statistically significant, (P<0.05) .05 level of significance.

Table illustrate that the Mean and SD values of cardiovascular fitness between Urban Govt .School boys and Urban Private School boys were 1952.59±149.97 and 1897.90±139.80 respectively. The obtained "t" value 5.9654 (1.962) was found statistically significant, (P<0.05) .05 level of significance.

Table depicts the Mean and SD values of cardiovascular fitness between Rural Govt. School boys and Urban Govt. School boys were 1986.97±135.83 and 1952.59±149.97 respectively. The obtained "t" value 3.7986 (1.962) was found statistically significant, (P<0.05) .05 level of significance.

Table show the Mean and SD values of cardiovascular fitness between Rural Private School boys and Urban Private School boys were 1919.98±140.89 and 1897.90 ±139.80 respectively. The obtained "t" value 2.48

TABLE 4.2
COMPARISON OF MEAN AND S.D. FOR BODY FAT PERCENTAGE IN DIFFERENT TYPES OF SCHOOL BOYS

Group	N	Mean	SD	't' value
Rural Govt.School boys	500	16.616	4.509	6.8007*
Rural Private School boys	500	18.416	3.830	
Urban Govt.School boys	500	18.153	3.204	4.7672*
Urban Private School boys	500	19.229	3.899	
Rural Govt.School boys	500	16.616	4.509	6.2099*
Urban Govt.School boys	500	18.153	3.204	
Rural Private School boys	500	18.416	3.830	3.3264*
Urban Private School boys	500	19.229	3.899	

't' value at $_{0.05}(998)$ =1.962

Table 4.2: represent the Mean and SD values of cardiovascular fitness between Rural Govt. School boys and Rural Private School boys were 16.616±4.509 and 18.416±3.830 respectively. The obtained "t" value 6.8007 (1.962) was found statistically significant, (P<0.05) .05 level of significance.

Table illustrate that the Mean and SD values of cardiovascular fitness between Urban Govt. School boys and Urban Private School boys were 18.153±3.204 and 19.229±3.899 respectively. The obtained "t" value 4.7672 (1.962) was found statistically significant, (P<0.05) .05 level of significance.

Table depicts the Mean and SD values of cardiovascular fitness between Rural Govt. School boys and Urban Govt. School boys were 16.616±4.509 and 18.153±3.204 respectively. The obtained "t" value 6.2099 (1.962) was found statistically significant, (P<0.05) .05 level of significance.

Table show the Mean and SD values of cardiovascular fitness between Rural Private School boys and Urban Private School boys were 18.416±3.830 and 19.229 ±3.899 respectively. The obtained "t" value 3.3264 (1.962) was found statistically significant, (P<0.05) .05 level of significance.

TABLE 4.3: COMPARISON OF MEAN AND S.D. FOR ABDOMINAL MUSCULAR STRENGTH IN DIFFERENT TYPES OF SCHOOL BOYS

Group	N	Mean	SD	't' value
Rural Govt.School boys	500	36.58	5.97	2.5480*
Rural Private School boys	500	35.71	4.73	
Urban Govt.School boys	500	33.76	5.83	5.8895*
Urban Private School boys	500	31.56	5.97	
Rural Govt.School boys	500	36.58	5.97	7.5485*
Urban Govt.School boys	500	33.76	5.83	
Rural Private School boys	500	35.71	4.73	12.1643*
Urban Private School boys	500	31.56	5.97	

't' value at$_{0.05}$(998) =1.962

Table 4.3: represent the Mean and SD values of cardiovascular fitness between Rural Govt. School boys and Rural Private School boys were 36.58±5.97 and 35.71±4.73respectively. The obtained "t" value 2.5482 (1.962) was found statistically significant, (P<0.05) .05 level of significance.

Table illustrate that the Mean and SD values of cardiovascular fitness between Urban Govt. School boys and Urban Private School boys were 33.76±5.83and 31.56±5.97respectively. The obtained "t" value 5.8895 (1.962) was found statistically significant, (P<0.05) .05 level of significance.

Table depicts the Mean and SD values of cardiovascular fitness between Rural Govt. School boys and Urban Govt. School boys were 36.58±5.97and 33.76±5.83respectively. The obtained "t" value 7.5485 (1.962) was found statistically significant, (P<0.05) .05 level of significance.

Table show the Mean and SD values of cardiovascular fitness between Rural Private School boys and Urban Private School boys were 35.71±4.73 and 31.56±5.97 respectively. The obtained "t" value 12.1643 (1.962) was found statistically significant, (P<0.05) .05 level of significance.

TABLE 4.4: COMPARISON OF MEAN AND S.D. FOR FLEXIBILITY IN DIFFERENT TYPES OF SCHOOL BOYS

Group	N	Mean	SD	't' value
Rural Govt.School boys	500	10.742	1.596	8.5645*
Rural Private School boys	500	9.883	1.574	
Urban Govt.School boys	500	9.832	1.477	9.85253*
Urban Private School boys	500	8.778	1.880	
Rural Govt.School boys	500	10.742	1.596	9.3556*
Urban Govt.School boys	500	9.832	1.477	
Rural Private School boys	500	9.883	1.574	10.0731*
Urban Private School boys	500	8.778	1.880	

't' value at $_{0.05}$ (998) =1.962

Table 4.4: represent the Mean and SD values of cardiovascular fitness between Rural Govt. School boys and Rural Private School boys were 10.742±1.596 and 9.883±1.574respectively. The obtained "t" value 8.5645 (1.962) was found statistically significant, (P<0.05) .05 level of significance.

Table illustrate that the Mean and SD values of cardiovascular fitness between Urban Govt. School boys and Urban Private School boys were 9.832±1.477and 8.778±1.880respectively. The obtained "t" value 9.85253 (1.962) was found statistically significant, (P<0.05) .05 level of significance.

Table depicts the Mean and SD values of cardiovascular fitness between Rural Govt. School boys and Urban Govt. School boys were 10.742±1.596 and 9.832±1.47 respectively. The obtained "t" value 7.5485 (1.962) was found statistically significant, (P<0.05) .05 level of significance.

Table show the Mean and SD values of cardiovascular fitness between Rural Private School boys and Urban Private School boys were 9.883±1.574 and 8.778±1.880 respectively. The obtained "t" value 10.0731 (1.962) was found statistically significant, (P<0.05) .05 level of significance.

TABLE 4.5(a) MEAN AND STANDARD DEVIATION RESULTS WITH REGARD TO CARDIOVASCULAR FITNESS AMONG FOUR DIFFERENT TYPES OF SCHOOL BOYS

Group	N	Mean	SD
Govt.Rural School boys	500	1986.96	135.83
Private Rural School boys	500	1919.97	140.88
Govt.Urban School boys	500	1952.59	149.97
Private Urban School boys	500	1897.89	139.79
Total	2000	1939.35	145.56

Table-4.5 (a) shows the Mean and SD values of Govt. Rural School boys for their cardiovascular fitness of different types of school (Govt. Rural, Private Rural, Govt. Urban and Private Urban School) boys were 1986.96±135.83, 1919.97±140.88, 1952.59±149.97 and 1897.89±139.79 respectively. The graphic presentations of responses are displayed in figure 4.5.

TABLE 4.5(b). ANALYSIS OF VARIANCE RESULTS WITH REGARD TO CARDIOVASCULAR FITNESS AMONG FOUR DIFFERENT TYPES OF SCHOOL BOYS

	Sum of Squares	Df	Mean Squares	F	Sig.
Between groups	2268171.132	3	756057.044	37.646	.000
Within groups	40086760.540	1996	20083.547		
Total	42354931.672	1999			

**Significant at* $F_{0.05} = 2.61$

It is evident from table 4.5(b) that the outcomes of Analysis of Variance among four different types of school boys with regard to the cardiovascular fitness were statistically significant (P<0.05). So the obtained "F" ratio 37.646 (.000) was statistically significant.

TABLE 4.5(c). ANALYSIS OF LEAST SIGNIFICANT DIFFERENCE POST HOC TEST WITH REGARD TO CARDIOVASCULAR FITNESS AMONG FOUR DIFFERENT TYPES OF SCHOOL BOYS

Group-1 (I)	Group-2 (J)	Mean Difference (I-J)	Sig.
Govt.Rural School boys Mean=1986.96	Private Rural School boys	66.98800*	.000
	Govt.Urban School boys	34.37400*	.000
	Private Urban School boys	89.07000*	.000
Private Rural School boys Mean=1919.97	Govt.Rural School boys	-66.98800*	.000
	Govt.Urban School boys	-32.61400*	.000
	Private Urban School boys	22.08200*	.014
Govt.Urban School boys Mean=1952.59	Govt.Rural School boys	-34.37400*	.000
	Private Rural School boys	32.61400*	.000
	Private Urban School boys	54.69600*	.000
Private Urban School boys Mean=1897.89	Govt.Rural School boys	-89.07000*	.000
	Private Rural School boys	-22.08200*	.014
	Govt.Urban School boys	-54.69600*	.000

**Significant at* $F_{0.05}$ *(2.61)*

Table 4.5(c) shows that mean value of Govt. Rural School boys were 1986.96 whereas Private Rural School boys had mean value 1919.97 and the mean diversity between both the groups were found 66.98800*. The p-value sig 0.000 confirm that the Govt. Rural School boys subjects had demonstrated better on cardiovascular fitness as compare the Private Rural School boys significantly.

The mean value of Govt. Rural School boys were 1986.96 whereas Govt. Urban School boys had the mean value as

1952.59 and mean variation between both the groups were found 34.37400*. The p-value sig .000 shows that the Govt. Rural School boys subjects had demonstrated better on cardiovascular fitness as compare the Govt. Urban School boys significantly.

The mean value of Govt. Rural School boys were1986.96 whereas Private Urban School boys had the mean value as 1897.89 and mean variation between two groups was found 89.07000*. The p-value sig 0.000 shows that Govt. Rural School boy's subjects had demonstrated better on cardiovascular fitness as compare the Private Urban School boys significantly.

The mean difference cardiovascular fitness between Private Rural School boys and Govt. Urban School boys was found -32.61400*. The p-value sig .000 is significant difference.

The mean difference cardiovascular fitness between Private Rural School boys and Private Urban School boys was found 22.08200*. The p-value sig .014 is significant difference.

The mean difference of cardiovascular fitness between Govt. Urban School boys and Private Urban School boys was found 54.69600*. The p-value sig .000 is significant difference.

DISCUSSION OF THE FINDINGS

- The result of the study revealed that the private rural school boys were significantly better than private urban school boys in the case of health related physical fitness parameter; cardiovascular fitness, body fat percentage, abdominal muscular strength and flexibility.
- The outcomes of the study confirmed that the Govt. school boys of rural areas had upper hand than urban Govt. school boys with regard to the health related physical fitness parameter; cardiovascular fitness, body fat percentage, abdominal muscular strength and flexibility.
- The results of the study scrutinize that the Govt. school boys of rural areas were significantly better than Private school boys of rural areas with regard to the health related physical fitness parameter; cardiovascular fitness, body fat percentage, abdominal muscular strength and flexibility.
- Further the outcomes of the study inspect that the Govt. school boys of urban areas were better than Private school boys of urban areas with regard to the health related physical fitness parameter; cardiovascular fitness, body fat percentage, abdominal muscular strength and flexibility.
- The outcomes of the study confirmed that there was no significant difference in cardiovascular fitness & abdominal muscular strength among different age group of rural Govt. school boys. Further it is concluded that there was significant difference in body fat percentage and flexibility variable among different age group of rural Govt. school boys.
- Further the results of the study inspect that there was significant difference among different age group of rural private school boys with regards to the health related physical fitness parameter; cardiovascular fitness, body fat percentage, abdominal muscular strength and flexibility.
- The outcomes of the study scrutinize that the there was no significant difference found among different age group of urban Govt. school boys in the case of cardiovascular fitness variable. Further significant difference was found among different age group of urban Govt. school boys with regards to body fat percentage, abdominal muscular strength & flexibility variable.
- The findings of the study inspect that there was no significant difference found among different age group of urban private school boys in the case of cardiovascular fitness and flexibility variables. Further significant difference was found among different age group of urban private school boys with regards to body fat percentage & abdominal muscular strength variables.

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