Study of Body Composition Belonging to the Different Economic Status Schools

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Abstract

Purpose – The purpose of this study was to compare the Body Composition of boys and girls belonging to the different Economic Status Schools from Srinagar city.

Design/methodology/approach – Descriptive survey method was used. 240 students (120 boys &120 girls) aged between ±14 years were selected by using purposively Sample techniques from 3 different economic status schools from Srinagar city. In the Body composition the component like weight was measured by weighing machine & height was measured by stediometer, fat percent and BMI was measured by Omron body fat monitor. 2x3 ANOVA was used for statistical analysis.

Findings – Results showed that there was significant difference in component like weight, height, fat percent& BMI of boys and girls between the groups and within the groups. The 'f' value of weight, height, fat percent& BMI was 30.152, 18.166, 30.71, 8.62 respectively, all these 'f' values were significant at 0.05(p=0.05) level of significant. While in the multiple comparison high socio-economic boys & girls were better in height & weight M=53.92(±13.68), 162.75(±10.26), 48(±8.70), 154.12(±6.04), respectively. In fat percent middle socio-economic status school boys & low socio-economic status school girls were better M=16.52(±6.89), 19.54(±5.99) respectively, in B.M.I. low socio-economic status school boys& middle socio-economic status school girls were better M=16.79(±2.54), 17.61(±2.72).

KEYWORDS – Body Composition, Socio-Economic Status, Fat Percentage, BMI.

Introduction :- Increasing physical activity is an effective way to maintain body composition and potentially prevent obesity. Physical activity has been shown to induce health related benefits in males and females of all age groups (American College of Sports Medicine 2005; Freitas et al. 2006; Giles-Corti and Donovan 2002; Gordon-Larsen et al. 2005; Metcalf et al. 2007; Najman etal. 2006; Reddy et al. 2002; Richardson et al. 2004; Rutt and Coleman 2005). In fact, physical activity appears to be the most beneficial prevention practice in individuals at high risk for coronary artery disease (Richardson et al. 2004). Some of the benefits to the coronary artery disease risk profile include reduced blood pressure, enhanced blood lipid profile, reduction of percent body fat, and lowered incidence of type II diabetes (American College of Sports Medicine 2005). Physical activity has also been shown to reduce the prevalence of abdominal fat accumulation (Okusun et al. 2006), which serves as an independent contributor to cardiovascular risk, apart from percent body fat

Modern day schools have accepted the challenge of contemporary society to develop the total capacity of each child, so that in adulthood, the child will be equipped with the knowledge, sound thinking processes, physical stamina and emotional maturity to live effectively in an ever changing and highly complex society (Adegun, 2008).

Methodology:-the purpose of this study was to study the Body Composition of boys and girls belonging to the different Economic Status Schools from Srinagar city. 240 students from three private schools from Srinagar city in Jammu And Kashmir State were selected. In which 120 boys and 120 girls were selected as subjects for the study. The age ranged from 14 to 18 years. Body composition fat percentage, height, weight, and BMI were selected as criterion variables. Fat percentage and BMI was measured by Omron body fat monitor, height was measured by stedio meter in centimeters and weight was measured by weighing machine in kg. The collected data were analyzed by using ANNOVA Statistical technique. The level of significance was fixed at 0.05.

Results :- **Analysis of weight dimension for different socio-economic status schools body composition component**

TABLE NO 4.1

Descriptive statistics different socio-economic status schools body composition component

	School type	s N	Mean	Std. Deviation	Std. Erro
Weight	Dpsboy	40	42.075	8.69538	1.37486
	Burhallboys	40	46.125	12.13215	1.91826
	RPsboys	40	53.925	13.68583	2.16392
	Dpsgirl	40	38.575	6.72495	1.06331
	Burnhallegirl	40	40.25	6.70151	1.0596
	Rpsgirl	40	48.00	8.70308	1.37608
	Total	240	44.825	11.00564	0.71041

The table no 4.1 represent the descriptive statistics of weight of different socio-economic status schools body composition component there were total 240 subjects belonged to the low socio-economic status school boys & girls, middle socio-economic status school boys & girls ,& high socio-economic status school boys & girls with mean. In weight dimension mean was 42.07($\pm$8.69), 38.57($\pm$6.72), 46.12($\pm$12.13), 40.25($\pm$6.70), 53.92($\pm$13.68), 48($\pm$8.70). Respectively,

ANOVA comparing weight dimension in different socio-economic status schools body composition component

TABLE NO 4.2

ANOVA comparing different socio-economic status schools body composition component

		Sum of Squares	df	Mean Square	F	Sig.
Weight	Between Groups	6485.45	5	1297.09	13.512	.000
	Within Groups	22463.2	234	95.997		
	Total	28948.65	239			

Table no-4.2 represent that comparison weight dimension between the different socio-economic statues school for weight calculated F value is 13.512 with degree of freedom 5. Which shows statistically significant different at 0.05 significant level .this indicate that different economic status school wise significant different in weight dimension of body composition component

4.2.2 Analysis of height dimension for different socio-economic status schools body composition component

TABLE NO 4.3

Descriptives statistics different socio-economic status schools body composition component

	School type	N	Mean	Std. Deviation	Std. Error
hieght	dpsboy	40	158.6	9.12815	1.44329
	burnhallboys	40	161.2	7.61645	1.20427
	rpsboys	40	162.75	10.26757	1.62345
	dpsgirl	40	149.55	6.68312	1.05669
	burnhallgirl	40	152.45	5.57904	0.88212
	rpsgirl	40	154.125	6.04338	0.95554
	Total	240	156.4458	9.01865	0.58215

The table 4.3 represent the descriptive statistics of height of different socio-economic status schools body composition component there were total 240 subjects belonged to the low socio-economic status school boys & girls, middle socio-economic status school boys & girls ,& high socio-economic status school boys & girls with mean. In

height dimension mean was 158.6(±9.12), 149.55(±6.68), 161.20(±7.61), 152.45(±5.57), 162.75(±10.26), 154.12(±6.04) respectively,

ANOVA comparing height dimension in different socio-economic status schools body composition component

TABLE NO 4.4

ANOVA comparing different socio-economic status schools body composition component

	Sum of Squares	df	Mean Square	F	Sig.
Height Between Groups	5435.621	5	1087.124	18.166	.000
Within Groups	14003.68	234	59.845		
Total	19439.3	239			

Table no-4.4 represent that comparison height dimension between the different socio-economic statues school for height calculated F value is 18.166 with degree of freedom 5. Which shows statistically significant different at 0.05 significant level .this indicate that different economic status school wise significant different in height dimension of body composition component.

4.2.3 Analysis of fat percent dimension for different socio-economic status schools body composition component

TABLE NO 4.5

Descriptives statistics different socio-economic status schools body composition component

	school type	N	Mean	Std. Deviation	Std. Error
fatpercent	dpsboy	40	14.6625	6.19101	0.97888
	burnhallboys	40	16.529	6.89061	1.0895
	rpsboys	40	20.71	6.28351	0.99351
	dpsgirl	40	19.5425	5.992	0.94742
	burnhallgirl	40	19.9275	6.36424	1.00628
	rpsgirl	40	25.3725	6.12975	0.9692
	Total	240	19.4573	7.10523	0.45864

The table no 4.5 represent the descriptive statistics of fat percent of different socio-economic status schools body composition component there were total 240 subjects belonged to the low socio-economic status school boys & girls, middle socio-economic status school boys & girls ,& high socio-economic status school boys & girls with mean. In fat percent dimension mean was 14.66(±6.19), 19.54(±5.99),16.52(±6.89), 19.92(±6.36), 20.71(±6.28), 25.37(±6.12) respectively,

ANOVA comparing fat percent dimension in different socio-economic status schools body composition component

TABLE NO 4.6

ANOVA comparing different socio-economic status schools body composition component

		Sum of Squares	df	Mean Square	F	Sig.
Fat percent	Between Groups	2734.09	5	546.818	13.712	.000
	Within Groups	9331.647	234	39.879		
	Total	12065.74		239		

Table no-4.6 represent that comparison fat percent dimension between the different socio-economic statues school for fat percent calculated F value is 13.712 with degree of freedom 5. Which shows statistically significant different at 0.05 significant level .this indicate that different economic status school wise significant different in fat percent dimension of body composition component.

4.2.4 Analysis of BMI dimension for different socio-economic status schools body composition component

TABLE NO 4.7

Descriptives statistics different socio-economic status schools body composition component

	school type	N	Mean	Std. Deviation	Std. Error
BMI	dpsboy	40	16.79	2.54093	0.40176
	Burnhallboys	40	17.6233	4.01316	0.63454
	rpsboys	40	20.155	4.16438	0.65845
	dpsgirl	40	17.18	2.58538	0.40878
	burnhallgirl	40	17.31	2.72404	0.43071
	rpsgirl	40	20.1	3.2395	0.51221
	Total	240	18.193	3.53051	0.22789

The table no 4.7 represent the descriptive statistics of BMI of different socio-economic status schools body composition component there were total 240 subjects belonged to the low socio-economic status school boys & girls, middle socio-economic status school boys & girls ,& high socio-economic status school boys & girls with mean., In BMI dimension mean was 16.79(±2.54), 17.18(±2.58), 17.62(±4.01), 17.31(±2.72), 20.15(±4.16), 20.10(±3.23) respectively,

ANOVA comparing different socio-economic status schools body composition component

TABLE NO 4.8

ANOVA comparing different socio-economic status schools body composition component

		Sum of Squares	df	Mean Square	F	Sig.
BMI	Between Groups	463.399	5	92.68	8.621	.000
	Within Groups	2515.608		234	10.75	
	Total	2979.007		239		

Table no-4.8 represent that comparison BMI dimension between the different socio-economic statues school for BMI calculated F value is 8.621 with degree of freedom 5. Which shows statistically significant different at 0.05 significant level .this indicate that different economic status school wise significant different in BMI dimension of body composition component.

TABLE NO 4.9

Multiple Comparisons:LSD POST HOC table of weight dimension

Dependent Variable	(I) school type	(J) school type	Mean Difference (I-J)	Std. Error	Sig.
Weight	dpsboy	burnhallboys	4.05	2.19	0.636
		rpsboys	11.85*	2.19	0.000
		dpsgirl	3.5	2.19	0.768
	burnhallboys	dpsboy	4.05	2.19	0.636
		rpsboys	7.80*	2.19	0.029
		burnhallgirl	5.87	2.19	0.211
	rpsboys	dpsboy	11.85*	2.19	0.000
		burnhallboys	7.80*	2.19	0.029
		rpsgirl	5.92	2.19	0.203
	dpsgirl	dpsboy	3.5	2.19	0.768
		burnhallgirl	1.67	2.19	0.989

	rpsgirl	9.42*	2.19	0.003
burnhallgirl	burnhallboys	5.87	2.19	0.211
	dpsgirl	1.67	2.19	0.989
	rpsgirl	7.75*	2.19	0.031
rpsgirl	rpsboys	5.92	2.19	0.203
	dpsgirl	9.42*	2.19	0.003
	burnhallgirl	7.75*	2.19	0.031

In table no 4.9 LSD POST HOC TEST used for testing further differences between different socio-economic statues school for weight dimension. Different are statistically significant at 0.05 .significant level for low socio-economic status school boys& high socio-economic status school boys, middle socio-economic status school boys & high socio-economic status school boys, low socio-economic status school girls & high socio-economic status school girls, middle socio-economic status school girls & high socio-economic status school girls.(MD 11.85,7.80,9.42,7.75) respectively.

TABLE NO 4.10

Multiple Comparisons:LSD POST HOC table of height dimension

Dependent Variable	(I) schooltype	(J) schooltype	Mean Difference (I-J)	Std. Error	Sig.
Height	dpsboy	burnhallboys	2.6	1.72	0.812
		rpsboys	4.15	1.72	0.334
		dpsgirl	9.05*	1.72	0.000
	burnhallboys	dpsboy	2.6	1.72	0.812
		rpsboys	1.55	1.72	0.977
		burnhallgirl	8.75*	1.72	0.000
	rpsboys	dpsboy	4.15	1.72	0.334
		burnhallboys	1.55	1.72	0.977
		rpsgirls	8.62*	1.72	0.00
	dpsgirls	dpsboys	9.05*	1.72	0.00
		burnhallgirls	2.9	1.72	0.729
		rpsgirls	4.57	1.72	0.225
	burnhallgirls	burnhallboys	8.75*	1.72	0.000
		dpsgirls	2.9	1.72	0.729
		rpsgirl	1.67	1.72	0.967
	rpsgirl	rpsboys	8.62*	1.72	0.000
		dpsgirls	4.57	1.72	0.225
		burnhallgirl	1.67	1.72	0.967

In table no 4.10 LSD POST HOC TEST used for testing further differences between different socio-economic statues school for height dimension. Different are statistically significant at 0.05 .significant level for low socio-economic status school boys& low socio-economic status school girls, middle socio-economic status school boys & middle socio-economic status school girls, high socio-economic status school boys & high socio-economic status school girls.(MD 9.05,8.75,8.62) respectively.

TABLE NO 4.11

Multiple Comparisons:LSD POST HOC table of fat percent dimension

Dependent Variable	(I) schooltype	(J) schooltype	Mean Difference (I-J)	Std. Error	Sig.
Fat %	dpsboys	burnhallboys	1.86	1.41	0.882
		rpsboys	6.04*	1.41	0.003
		dpsgirl	4.88*	1.41	0.039
	burnhallboys	dpsboy	1.86	1.41	0.882
		rpsboys	4.18	1.41	0.123
		burnhallgirl	3.39	1.41	0.33
	rpsboys	dpsboys	6.04*	1.41	0.003
		burnhallboys	4.18	1.41	0.123
		rpsgirls	4.66	1.41	0.057
	dpsgirls	dpsboys	4.88*	1.41	0.039
		burnhallgirls	0.38	1.41	1.000
		rpsgirls	5.83*	1.41	0.005
	burnhallgirls	burnhallboys	3.39	1.41	0.33
		dpsgirls	0.38	1.41	1.000
		rpsgirls	5.44*	1.41	0.013
	rpsgirls	rpsboys	4.66	1.41	0.057
		dpsgirls	5.83*	1.41	0.005
		burnhallgirls	5.44*	1.41	0.013

In table no 4.11 LSD POST HOC TEST used for testing further differences between different socio-economic statues school for fat percent dimension. Different are statistically significant at 0.05 .significant level for low socio-economic status school boys& high socio-economic status school boys, low socio-economic status school boys & low socio-economic status school boys, low socio-economic status school girls & high socio-economic status school girls, middle socio-economic status school girls & high socio-economic status school girls.(MD 6.04,4.88,5.83,5.44) respectively.

TABLE NO 4.12

Multiple Comparisons:LSD POST HOC table of BMI dimension

Dependent Variable	(I) schooltype	(J) schooltype	Mean Difference (I-J)	Std. Error	Sig
BMI	dpsboys	burnhallboys	0.83	0.73	0.935
		rpsboys	3.36*	0.73	0.001
		dpsgirls	0.39	0.73	0.998
	burnhallboys	dpsboys	0.83	0.73	0.935
		rpsboys	2.53*	0.73	0.039
		burnhallgirls	0.31	0.73	0.999
	rpsboys	dpsboys	3.36*	0.73	0.001
		burnhallboys	2.53*	0.73	0.039
		rpsgirls	0.05	0.73	1.000
	dpsgirls	dpsboys	0.39	0.73	0.998
		burnhallgirls	0.13	0.73	1.000
		rpsgirls	2.92*	0.73	0.009
	burnhallgirls	burnhallboys	0.31	0.73	0.999
		dpsgirls	0.13	0.73	1.000
		rpsgirls	2.79*	0.73	0.015
	rpsgirls	rpsboys	0.05	0.73	1.000
		dpsgirls	2.92*	0.73	0.009
		burnhallgirls	2.79*	0.73	0.015

In table no 4.12 LSD POST HOC TEST used for testing further differences between different socio-economic statues school for BMI dimension. Different are statistically significant at 0.05 .significant level for low socio-economic status school boys& high socio-economic status school boys, middle socio-economic status school boys & high socio-economic status school boys, middle socio-economic status school girls & high socio-economic status school girls, high socio-economic status school girls & low socio-economic status school girls.(MD 3.36,2.53,2.79,2.92) respectively.

Conclusion:-

It was found that there was significant deference in weight dimension of body composition among the students of deferent economic status school.

It was found that there was significant deference in height dimension of body composition among the students of deferent economic status school.

It was found that there was significant deference in fat percentage dimension of body composition among the students of deferent economic status school.

It was found that there was significant deference in BMI dimension of body composition among the students of deferent economic status school.

While in the multiple comparison high socio-economic boys & girls were better in height & weight.

In fat percent middle socio-economic status school boys & low socio-economic status school girls were better.

In B.M.I. low socio-economic status school boys & middle socio-economic status school girls were better

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