STUDY OF PHYSICAL ACTIVITY LEVELS OF STUDENTS DURING SCHOOL HOURS

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ABSTRACT

This descriptive comparative study aimed to examine the physical activity levels of students based on gender and grade level. A total of 40 students, including 20 girls and 20 boys from grades 7 and 8, were selected using simple random sampling from Modern English Medium School. Physical activity was assessed by tracking the number of steps taken during school hours with the help of a pedometer. Data were collected over one week and analysed using Mean, Standard Deviation, and Independent Sample t-test to compare the physical activity levels. The mean score for boys was 4023.15 ($\pm$559.67), while for girls it was 1755.65 ($\pm$332.30). The t-test revealed a significant difference (t = -22.03, p = 0.001), showing that boys were more physically active than girls. For grade comparison, the mean score for grade 7 students was 3253.42 ($\pm$1300.09), and for grade 8 students, it was 2525.39 ($\pm$1048.01). The t-test also showed a significant difference (t = 2.76, p = 0.001), indicating that 7th grade students were more active than 8th grade students. The study concluded that boys were more active than girls, and 7th grade students were more active than 8th grade students.

Keywords : Physical activity, Physical activity levels, Pedometer

Introduction

Physical activity and physical fitness have been closely linked with longevity for centuries. The role of physical activity in overall health and well-being has garnered significant interest from researchers, as it is influenced by various factors. To fully understand the relationship between physical activity and health, it is essential to consider the four evolutionary periods in human history. The pre-agricultural period (up until 10,000 years ago) involved high levels of physical activity through hunting

and gathering. The agricultural period (from 10,000 years ago to the early 19th century) also maintained high physical activity levels, though fat content in the diet began to rise. The industrial period (1800-1945) introduced overcrowding, poor diet, and inadequate medical care, marking the beginning of more sedentary lifestyles. Finally, the nuclear/technological period has seen advances in health care but also an increase in lifestyle-related diseases due to more sedentary behavior.

Physical Activity generally refers to any bodily movement produced by skeletal muscles requiring energy expenditure. It encompasses various forms such as play, sport, recreation, and exercise, contributing to physical fitness and overall health. Health benefits are gained through at least 30 minutes of moderate physical activity daily, which can be achieved through activities like walking, gardening, or recreational sports.

Benefits of Physical Activity include improvements in mental and social well-being. Physical activity has been shown to reduce symptoms of anxiety and depression (Sachs, 1982), and positively impact academic achievement. Regular physical activity enhances bone and muscle strength, controls weight, improves cardiovascular health, and reduces the risk of diseases like type 2 diabetes and certain cancers.

However, **lack of physical activity** is associated with numerous health risks, including obesity, cardiovascular disease, stroke, diabetes, decreased bone density, and muscle mass. Sedentary behaviours, like excessive screen time, contribute to these issues.

Barriers to Physical Activity include factors such as lack of time, suitable facilities, and self-motivation. Psychological barriers also play a role, with individuals often feeling uncomfortable participating in physical activity, especially if they are obese or lack support from family and friends.

Recommended Physical Activity Guidelines emphasize the importance of being active every day. Children and teenagers should accumulate at least 60 minutes of moderate-to-vigorous physical activity daily. Hatano (1993, 1997) recommended the goal of 10,000 steps per day to promote health, a target that has been widely adopted to encourage sedentary populations to increase their activity levels.

Role of Physical Education is crucial in helping individuals develop physical, mental, and social benefits through regular physical activities. School programs are key in educating students about health-related fitness and the importance of exercise. During adolescence, students should be exposed to a variety of activities, developing competence in some, to foster a lifelong interest in physical activity.

Assessment Techniques for measuring physical activity include methods such as heart rate monitors, direct observation, and pedometers. Pedometers, in particular, offer a low-cost, easy-to-use method to track steps and estimate distances walked. While they do not measure intensity or non-locomotor movements, pedometers are effective for setting goals and motivating increased activity.

Materials and methods

Method For this study descriptive comparative method was used the researcher intended to examine the physical activity level of school children, hence employed the descriptive comparative, the data collected was further used for comparisons between grades and gender.

Sampling

Population

The population for the study included all the 7 th & 8th grade students of the modern English medium school Pune.

Sample

Out of the total of 120 students from 7th grade and 111 from 8th grade of Modern English medium school 20 girls and 20 boys from 7th grade and 20 girls and 20 boys from 8th grade were selected as sample using simple random sampling technique. (Students were selected randomly using lottery method.)

Tools used for data collection

OMRON HJ – 109 pedometers Pedometer was usrd to measure total number of steps

Results and Discussions

Discussion It is interpreted that the boys are better than girls with respect to the number of steps taken in a day . The mean number of steps taken by the boys and girls mean score of boys and girls is 4023.15 and 1755.65 of Gender. respectively. It is also seen that the mean step taken by the of 7th and of 8 th grade student is 3253.42 and 2525.39 respectively. It shows that the boys are better than girls with respect to the number of steps taken in a day. The reason for this that the physical education teachers focus on sports teams and athletes, whereas non-athletes do not get equal attention, this leads to girls being deprived of adequate physical activity and motivation to participate in physical activity. It also Found that the student of grade 7th has greater number of steps per day than students of grade 8th. The reason

for this that the students of 8th are academically busier than students of grade 7th. So, they don't get enough time to do physical activity. (Sachs 1982) Research show a positive relationship between physical activity and academic achievement . Hence, it is very important to make them aware about the importance of physical activity. the study emphasizes the need to develop physical education schedule in accordance with a variety of factors e.g. individual and team sports, dance, aquatics, gymnastics, and fitness activities etc.

Results

Descriptive analysis

Table No.4.1 : *Descriptive statistic of 7th and 8th grades girls and boy's students*

Group	N	Mean	S. D	S E M
7th Girls	20	2007.14	243.73	54.49
Boys	20	4499.69	374.31	83.69
8th Girls	20	1504.17	184.70	41.30
Boys	20	3546.61	157.37	35.19

Table No. 4.1 Show that the Descriptive statistic of Girls and Boys of 7th and 8th grades when Numbers of steps taken of grades 7th was measured the mean score of girls is 2007.14 with the S.D of 243.73 with the SEM is 54.49. Similarly, the mean score of boys is 4499.69 with the S.D of 374.31 with the SEM is 83.69.

When Numbers of steps taken grade 8th was measured the mean score of girls is 1504.17 with the S. D of 184.70 with SEM 41.30. Similarly the mean score of boys is 3546.61 with S.D of 157.37 with SEM 35.19 . It shows that the boys are better than girls with respect to the number of steps taken in a day.

Figure 4.1: *The above graph shows the Comparison of Mean score of Number of steps taken by the individual*
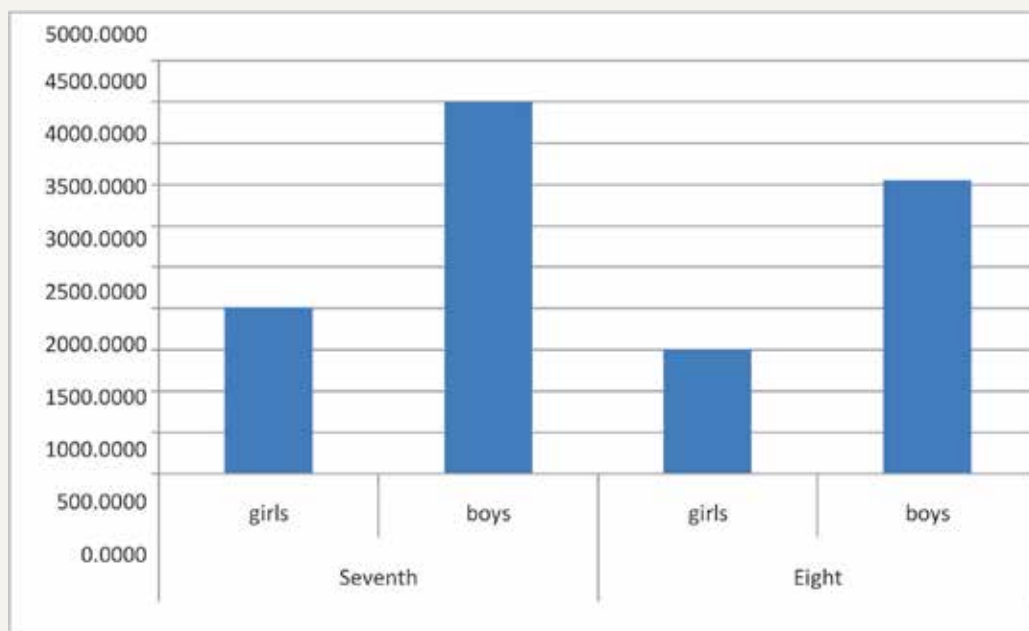
Table no 4.2 : *Gender wise Difference in the physical activity levels of students based on gender*

Gender	N	Mean	S. D	SEM
Girls Boys	40	1755.65	332.30	52.54
	40	4023.15	559.67	88.49

Table no 4.3 : *Independent Sample Test*

		Levene's Test for Equality of Variances		t test for equality of mean				
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference
PA	Equal variances assumed	36.31	.000	-22.03	78	.000	-2267.50
	Equal variances not assumed			-22.03	63.45	.000	-2267.50

The Table No – 4.3 show difference in physical activity levels of students based on gender. In the following table it shows that Levene's test for equality of variance of girls and boys. calculated F value is 36.31 which shows that there is equal variance assumed. On comparing mean levels of physical activity of girls and boys grade computed mean difference is -2267.50 . The calculated 't' value is -22.03 from DF 78 which show significant difference at 0.05 levels. since there is significant difference in the physical activity levels of Girls and Boys student's null hypothesis is rejected and research hypothesis is accepted.

Table no 4.4 : *Difference in the physical activity levels of students based on grades .*

grade	N	Mean	Std. Deviation	Std. Error Mean
PA 7th Grade	40	3253.42	1300.09	205.56
8th Grade	40	2525.39	1048.01	165.70

Table no 4.5 : *Independent Sample Test*

		Levene's Test for Equality of Variances		t test for equality of mean				
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference
PA	Equal variances assumed	16.09	.000	2.76	78	.007	728.02	264.03
	Equal variances not assumed	2.76	74.64	2.76	74.64	.007	728.02	264.03

Table No -4.5 show difference in physical activity levels of students based on grades of 7th and 8th students. In the following table it show the that Levene's test for equality of variance of from 7th and 8th grades calculated F value is 16.09 which show that there is equal variance assumed. on comparing mean levels of physical activity of 7th and 8th grades computed mean difference is 728.02 . The calculated 't' value is 2.76 from DF 78 which show significant difference at 0.05 levels . since there is significant difference in the physical activity levels of 7th and 8th grade of students . null hypothesis is rejected and research hypothesis is accepted.

Conclusion

From the findings it can be concluded that

1. when Gender wise comparison was done it is concluded that Boys are more Active than Girls.

2. when Gender wise comparison was done it is concluded that 7th Grade students are more active than 8th grade students

7th GRADES GIRLS & BOYS

8th GRADES GIRLS & BOYS

B   List of Students.

Grade 7th girls P.E.S Modern College high school English medium

Sr .no	Name of students	Monday	Tuesday	Wednesday	Thursday	Friday
1	mrunal Dnyaneshawar karkar	1676	1779	1852	1892	1894
2	Namrata Parag Deolalikar	1822	1842	1851	1868	1942
3	Mrunal Dhanajay Kakade	1923	1942	1982	1987	1984
4	Shravani Vilas Antre	1841	1872	1883	1878	1864
5	Sanskruti Vishwas Salunke	2842	2231	2692	2868	2892
6	Tanisha Sameer Wad	1842	1873	1895	1869	1894
7	Siya Nandkishor Harawade	1869	1872	1878	1833	1845
8	Ruchira Yogesh Bahirat	1982	1968	1948	1965	1994
9	Medha Sanjeev Tatuskar	1989	1942	1988	1984	1983
10	Tanaiya Samnth Tolge	2328	2213	2392	2341	2382
11	Vedika Rajes Mahadik	2218	2217	2692	2862	2921
12	Varada Vinayak Purohit	1829	1872	1895	1897	1889
13	Riya Nilesh Bodke	1943	1982	1989	1972	1943
14	Anushka Piyushkumar Gujrathi	1928	1936	1948	1972	1962
15	Gayatri Prasad Satpute	1948	1986	1987	1991	1982
16	Siddhi Basavaraj Kollurmath	1947	1982	1991	1982	1982
17	Siddhi Rajesh Gham	1842	1882	1872	1891	1821
18	Ketaki Anil Jeur	1835	1882	1872	1842	1872
19	Shabhada Anil Ware	1943	1982	1962	1972	2117
20	Riddhi Suhas Kharade	1821	1892	1872	1887	1842

Grade 7th Boys P.E.S Modern College high school English medium

Sr . No	Name of students	Monday	Tuesday	Wednesday	Thursday	Friday
1	Abhishek Nandkumar Bagal	3876	3984	4452	432	3539
2	Neel Sachin Murale	4538	4865	4876	4321	4765
3	Aniket Shrinand Khurase	4743	4321	4789	4789	4865
4	Siddhesh Pandurang Pawar	3890	4155	4321	4987	4956
5	Chaitanya Vijay Phalke	4567	4764	4869	4786	4849
6	Shreyas Ajay Gadre	4861	4689	4679	4765	4876
7	Aditya Narendra Murkute	4587	4876	4854	4321	4789
8	Shreyas Shripad Shete	4678	4654	4677	4789	4865
9	Soham Ajit Paranjape	4321	4368	4378	4378	4389
10	Kaushik Trilok Dhopeshwarkar	4676	4789	4854	4860	4861
11	Vedang Ajay Shinde	4687	4678	4684	4687	4689
12	Venkatesh Marati Kadam	4687	4321	4368	4367	4789
13	Arya Naresh Gujar	4326	4789	4743	4589	4743
14	Arya Abhijit Gorhe	4327	4389	4367	4358	4387
15	Soham Kumar wadke	3712	3854	3956	3968	3972
16	Soham Rahul Narkhedkar	3867	3987	4167	4234	4267
17	Rohan Ashok Kumbharkar	4567	4657	4660	4654	4689
18	Siddharth Santosh Karde	4345	4543	4675	4656	4678
19	Aditya Suresh Pawar	4567	4325	4786	4678	4655
20	Divyesh Prashant Khambete	4765	4769	4852	4678	4678

Grade 8th girls P.E.S Modern College high school English medium

Sr. no	Name students	Monday	Tuesday	Wednesday	Thursday	Friday
1	Siddhi Sanjay Shinde	1208	1248	1494	1287	1994
2	Sayali Askok Rakshe	1762	1688	1768	1881	1862
3	Isha Chandrakant Bodke	1563	1433	1674	1655	1771
4	Revati Raju Pawar	1522	1822	1843	1833	1982
5	Renuka Mahendra Nagarkar	1109	1223	1455	1434	1672
6	Aboli Rajendra kadu	1461	1542	1582	1618	1551
7	Mansi tushar Bhoite	1821	1822	1833	1568	1442
8	Isha Sanjay Pataskar	1222	1972	1766	1798	1831
9	Shivani Ajit Soman	1305	1677	1743	1563	1208
10	Soni Kiran Shekhar	1408	1833	1825	1563	1782
11	Sneha Raju Bansode	1441	1393	1281	1249	1442
12	Payel Sanjib Manna	1167	1533	1563	1781	1731
13	Mukta Chandan Mokashi	1282	1232	1248	1292	1233
14	Damayanti Biswajeet Saha	1233	1282	1232	1332	1342
15	Sneha Tushar Padwal	1242	1342	1346	1325	1340
16	Gauri Sandeep Chincholkar	1172	1396	1435	1410	1482
17	Isha Krishna Gore	1325	1342	1335	1327	1382
18	Shreya Sachin Dhawade	1419	1421	1426	1421	1428
19	Siddhi Mahendra Gunjal	1621	1782	1771	1732	1728
20	Samrudhi Yogesh Barve	1233	1282	1231	1231	1282

Grade 8th Boys P.E.S Modern College high school English medium

Sr. no	Name students	Monday	Tuesday	Wednesday	Thursday	Friday
1	Kunal Samer Dangra	3781	3786	3422	3533	3542
2	Ishan Mangesh Mankar	3522	3688	3121	3291	3242
3	Aditya Anand Wadkar	2882	3221	3265	3564	3782
4	Atharva Bhagirath Pathak	3517	3632	3742	3678	3682
5	Vedant Rajendra Umarane	3432	3622	3638	3640	3641
6	Dharmesh Ashwin Sharma	3420	3425	3462	3482	3491
7	Rugved Amod Dandekar	3426	3433	3432	3431	3462
8	Hrushikesh Shivajirao Jamdar	3394	3396	3421	3412	3418
9	Raviraj Dadaram Khokale	3321	3382	3311	3441	3449
10	Abhiraj Amol Dadaram	3431	3462	3478	3522	3531
11	Sahil Vinod Ghabade	3331	3329	3384	3396	3391
12	Atharva Suhas Shetty	3326	3321	3342	3396	3328
13	Devraj Makarand Malawe	3482	3522	3829	3830	3842
14	Atharva Sandeep Ingdle	3582	3721	3733	3721	3782
15	Harshraj Jaywant Lokhande	3613	3664	3621	3530	3621
16	Raghav Mangesh Josti	3642	3643	3632	3631	3642
17	Dhru Prashant Kalekar	3842	3838	3842	3854	3872
18	Runal Satish Navgire	3560	3581	3582	3581	3582
19	Sahil Parshuram mane	3572	3582	3531	3542	3617
20	Tanisha Manoj Deshpande	3821	3844	3862	3819	3811

References

 Riddoch, L.B., Andersen, N.W, Harro, M. Sardinha , L.B., Cooper , A.R. and Ekelund , U1 . (2004). Physical Activity Levels and Patterns of 9 – and 15- yr old European Children . Retrieved on June 24,2005, from http://www.acsm-mass.org

Constantinos, A. L, Sue , M.C.and Bennett, N2 (2003). Pedometer-assessed physical (ambulatory) activity in Cypriot children . Retrieved on September 23, 2010, from http://epe.sagepub.com / content /9 /1 /43.

Tudor – Locke C, Bassett. (2004). How many step/day are enough? Preliminary pedometer indices for public health . Retrived , March 9, 2012 , from http://www.ncbi.nlm.nih.gov/pubmed/14715035

Rowlands, A. V. , Eston , R.G. & Ingledew , D. K. (1998) . Relationship between activity levels , aerobic fitness , and body fat in 8 – 10- yr – old children . Retrieved on September 15, 2011, from http//jap, physiology. Org/content/ 86/ 4/ 1428. Abstract