

Original Research Article

A Cross Sectional /Descriptive Study to Assess the Physical Activity Level of School Children in Selected School in Trichy

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Abstract: *Background of the study:* Physical activity is any skeletal muscle-generated energy expenditure, according to the WHO. Regular exercise improves mental and physical health. To promote health, people of all ages and abilities should be more active and less sedentary. *Purpose:* The purpose of this research is to quantify the extent to which schoolchildren engage in physical activity during the school day. *Methodology:* The methodology employed in this study is that of quantitative research, and the research design chosen was a cross-sectional one. The investigation was conducted in a chosen Trichy school. Students in the sixth, seventh, eighth, and ninth grades made up the study population. The overall sample size for the study was sixty people, and its samples were picked using convenience sampling methods. A preplanned questionnaire was used to compile the information. The Physical Activity Questionnaire for Older Children (PAQ-C), by Kent C. Kowalski, is a standardized tool. Interviews were conducted to gather information, and both descriptive and inferential statistics were used to make sense of the results. Results: Most samples (49, or 98.0%) were moderately active. Low physical activity was found in sample 1 (2.0%). The mean weight was 146.99, the SD was 7.75. The average sample height was 40.84, with a standard deviation of 12.12. BMI averaged 18.67, with a standard deviation of 4.25. BMI variation was 18.11 and mean percentage was 29.53. Diet and mother's education were found to be linked with physical activity levels ($p < 0.05$). *Conclusion:* This study underlines the importance of physical activity in preventing non-communicable diseases including obesity and hypertension in schoolchildren. Primary prevention methods, such as mandated physical education programs, can reduce non-communicable diseases and their long-term effects on students.

Keywords: Physical activity, School Children, Body Mass Index, School going children.

INTRODUCTION

Adolescence is the transitional period from childhood to maturity. A adolescent on the verge of adolescence undergoes numerous physical and mental changes. (WHO 2022). In India, there are over 243 million adolescents, or roughly 20% of the population. Adolescence is the period of rapid physical and mental growth. During this period, rapid hormonal and physical changes can cause anxiety, tension, irritability, and a sense of unease. According to some, adolescence is a period of "stress and tension" and "storm and turmoil" due to the disturbances and disruptions caused by the period's natural development. During this period of transition, behavior and attitude change the most rapidly.

Physical activity is defined by the World Health Organization (WHO) as any physiological movement produced by skeletal muscles that significantly increases energy expenditure [1]. It may aid in weight loss, visceral fat reduction, blood pressure decrease, and even the prevention of type 2 diabetes [2]. Furthermore, Willet *et al.*, show that moderately vigorous physical exercise performed on a regular basis (>3 times per week) reduces the increase in risk variables associated with noncommunicable illnesses [3]. According to a recent meta-analysis on the association between children's health in Hong Kong and physical activity, regular motor activity has been demonstrated to have good effects.

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Noncommunicable diseases (NCDs) kill 41 million people each year, accounting for 74% of all deaths globally. WHO Noncommunicable Disease Fact Sheet 2019. Alcohol misuse, physical inactivity, cigarette use, and poor diet are the four main risk factors for NCDs. (World Health Organization fact sheet 2022)

Over 80% of adolescents worldwide do not get adequate physical activity. A sedentary lifestyle has a tremendous impact not just on how physically active one is, but also on how one develops physically, cognitively, and socially. Understanding teenagers' physical activity levels is critical for developing effective ways to fight a sedentary lifestyle. (2021, Sathyamurthi and Anjana). According to published international data, about 80% of 13 to 15-year-old youngsters did not meet the current physical activity recommendation of 60 minutes of moderate to vigorous physical exercise per day, emphasizing the need for increased physical activity. (From the Lancet Physical Activity Series) The time children spend on small screen activities is time they could be spending being physically active. (2021, Sathyamurthi and Anjana)

OBJECTIVES

1. To evaluate the degree of physical activity among students
2. To associate the degree of physical exercise to sociodemographic factors.

METHODOLOGY

The approach used in this study is quantitative research, and a cross-sectional research design was selected. The study was carried out in a selected educational institution located in Trichy. The study population consisted of students in grades six, seven, eight, and nine. The study employed a convenience sampling strategy to choose a total sample size of sixty individuals. The information was compiled using a preplanned questionnaire. The Physical Activity Questionnaire for Older Children (PAQ-C), developed by Kent C. Kowalski, is a validated and standardized instrument. The researchers performed interviews as a means of data collection, and subsequently employed both descriptive and inferential statistical analyses to interpret the findings.

RESULTS

Table I: Frequency and Percentage Distribution of Samples According to Socio-Demographic Variables (n = 50)

S. No	Socio-Demographic Variables	Experimental Group		
		F	%	
1.	Gender	Male	36	72.0
		Female	14	28.0
2.	Age	10 years	15	30.0
		11 years	20	40.0
		12 years	12	24.0
		13 years	2	4.0
		14 years	1	2.0
		15 years	15	30.0
3.	Family Type	Nuclear	37	74.0
		Joint	13	26.0
4.	Grade	6th Grade	1	2.0
		7th Grade	24	48.0
		8th Grade	15	30.0
		9th Grade	10	20.0
5.	Family Size	1 – 3	8	16.0
		4 – 6	38	76.0
		7 – 9	4	8.0
6.	Dietary Habit	Vegetarian	2	4.0
		Non-Vegetarian	48	96.0
7.	Education of Father	Illiterate	1	2.0
		Primary Education	8	16.0
		Secondary Education	18	36.0
		Higher Secondary Education	23	46.0
		Graduate	1	2.0
8.	Education of Mother	Illiterate	5	10.0
		Primary Education	11	22.0
		Secondary Education	20	40.0

S. No	Socio-Demographic Variables	Experimental Group		
		F	%	
		Higher Secondary Education	14	28.0
		Graduate	5	10.0
9.	Occupation of Father	Unemployed	0	0.0
		Private	33	66.0
		Government	17	34.0
10.	Occupation of Mother	Unemployed	31	62.0
		Private	16	32.0
		Government	31	62.0
11.	Family Income	< 10000 Rs	0	0.0
		10000-20000 Rs	18	36.0
		20000-30000 Rs	26	52.0
		>30000 Rs	6	12.0
12.	Religion	Hindu	39	78.0
		Christian	9	18.0
		Muslim	2	4.0
13.	Type of Family Members	No One	3	6.0
		Father	1	2.0
		Mother	17	34.0
		Grand Parents	2	4.0
		Father and Mother	4	8.0
		Father and Grand Parents	1	2.0
		Mother and Grand Parents	22	44.0
14.	Type of Non-Communicable Diseases	Diabetes and Hypertension	0	0.0
		Obesity / Overweight	0	0.0
		Diabetes Mellitus	13	26.0
		Cardiovascular disease	4	8.0
		Dyslipidemia / Hypertension	6	12.0
		Cancer	0	0.0
		None	27	54.0
		Thyroid disease / Kidney disease	0	0.0
15.	History of Non-Communicable Disease	Yes	28	56.0
		No	22	44.0

Table I shows the frequency and percentage distribution of samples according to demographic variables.

The preponderance of the study's samples were male, 36 (72.0%) as opposed to female, 14 (28.0%). Distribution of samples by age was as follows: in this study, the majority (204, 0%) were 12 years old. The majority of the samples in this study (74.0%) adhere to the nuclear family, based on their family structure. Regarding grade, the plurality of 24 students (48.0%) are in seventh grade. Regarding family size, the majority of the 38 samples (76.0%) in this study had four to six members. The overwhelming majority of the samples were non-vegetarian, as 49 (98.0%) were non-vegetarian. Samples of fathers' education indicate that the plurality of 23 (46.0%) had attained a bachelor's degree. The sample reveals that the plurality of 20 mothers (40%) had a postsecondary education. 33 (66%) of the fathers of the samples in this study were employed in the private sector. A majority of the samples' mothers (62%) are unemployed, based on their occupations. The majority of the 26 respondents (52%) had a family income between 20,000 and 30,000 rupees. The preponderance of 39 (78.0%) were Hindus according to the religion distribution sample. The plurality of respondents, 28 (56.0%), affirm having a history of non-communicable disease. The plurality of the 17 family members with a non-communicable disease (34.0%) were mothers. Regarding the type of non-communicable disease, diabetes mellitus accounted for the plurality of 13 cases (26.0%).

Table II: Descriptive Statistics of Bio-Physiological Parameters Such as Weight, Height and BMI level of Samples (n = 50)

Parameters EXP	Weight	Height	BMI
Mean	146.99	40.84	18.67
SD	7.75	12.12	4.25
Variance	60.14	147.08	18.11
Mean Percentage	165	80.40	29.53

Table II shows the mean, standard deviation, variance and mean percentage values of the parameters of samples in such as weight, height and body mass index.

The mean weight was 146.99, the standard deviation weight score was 7.75, the mean percentage was 165, and the degree of variance was 60.14. The average height of the samples in the was 40.84, with a standard deviation of 12.12. The amount of variation was 147.08. For height, the mean percentage score was 80.40. The average BMI was 18.67, with a standard deviation of 4.25. The BMI had a variance score of 18.11 and a mean percentage score of 29.53.

Table III: Frequency and Percentage Distribution of Samples Level of Physical Activity (n = 50)

S. No	Level of Physical Activity	Pre – Test	
		F	%
1.	Low physical activity	1	2.0
2.	Moderate	49	98.0
3.	Vigorous	0	0.0

Table III shows the Frequency and Percentage Distribution of Samples Level of Physical Activity.

The majority of samples (49, or 98.0 %) demonstrated a moderate level of physical activity. Only one sample 1 (2.0 %) were with low physical activity.

Table IV: Level of Association between Socio-Demographic Variables and Level of Physical Activity (n = 50)

S. No	Demographic Variables		Low	Moderate	χ^2	p
1.	Gender	Male	1 2.8%	35 97.2%	3.97	0.72
		Female	0 0.0%	14 100.0%		
2.	Age	11 years	0 0.0%	15 100.0%	3.23	0.52
		12 years	0 0.0%	20 100.0%		
		13 years	1 8.3%	11 91.7%		
		14 years	0 0.0%	2 100.0%		
		15 years	0 0.0%	1 100.0%		
3.	Type of Family	Nuclear	0 0.0%	37 100.0%	2.90	0.26
		Joint	1 7.7%	12 92.3%		
4.	Grade	6th Grade	0 0.0%	1 100.0%	4.08	2.53
		7th Grade	0 0.0%	24 100.0%		
		8th Grade	0 0.0%	15 100.0%		
		9th Grade	1 10.0%	9 90.0%		
			1 10.0%	49 90.0%		
5.	Family Size	1 - 3	1 12.5%	7 87.5%	5.35	0.06
		4 - 6	0 0.0%	38 100.0%		
		7 - 9	0 0.0%	4 100.0%		
6.	Type of Diet	Veg	1 50.0%	1 50.0%	24.49	0.04*
		Non-Veg	0	48		

S. No	Demographic Variables		Low	Moderate	χ^2	p
			0.0%	100.0%		
7.	Father's Education	Primary Education	0	1	1.81	0.61
			0.0%	100.0%		
		Secondary Education	0	8		
			0.0%	100.0%		
		Higher Secondary Education	1	17		
			5.6%	94.4%		
Graduate	0	23				
	0.0%	100.0%				
8.	Mother's Education	Primary Education	1	4	9.18	0.02*
			20.0%	80.0%		
		Secondary Education	0	11		
			0.0%	100.0%		
		Higher Secondary Education	0	20		
			0.0%	100.0%		
Graduate	0	14				
	0.0%	100.0%				
9.	Father's Occupation	Private	0	33	1.98	0.34
			0.0%	100.0%		
		Government	1	16		
			5.9%	94.1%		
10.	Mother's Occupation	Unemployed	1	30	0.62	0.73
			3.2%	96.8%		
		Private	0	16		
			0.0%	100.0%		
		Government	0	3		
			0.0%	100.0%		
11.	Family Monthly Income	10000-20000 Rs	0	18	0.94	0.62
			0.0%	100.0%		
		20000-30000 Rs	1	25		
			3.8%	96.2%		
		>30000 Rs	0	6		
			0.0%	100.0%		
12.	Religion	Hindu	1	38	0.28	0.86
			2.6%	97.4%		
		Christian	0	9		
			0.0%	100.0%		
		Muslim	0	2		
			0.0%	100.0%		
13.	History of Non-Communicable Disease	Yes	0	28	1.29	0.44
			0.0%	100.0%		
		No	1	21		
			4.5%	95.5%		
14.	Type of Family Members	No One	0	3	1.29	0.97
			0.0%	100.0%		
		Father	0	1		
			0.0%	100.0%		
		Mother	0	17		
			0.0%	100.0%		
		Sibling	0	2		
			0.0%	100.0%		
		Grand Parents	0	4		
			0.0%	100.0%		
Father and Mother	0	1				
	0.0%	100.0%				
Father and Grand Parents	1	21				
	4.5%	95.5%				

S. No	Demographic Variables	Low	Moderate	χ^2	p	
15.	Type of Non-Communicable Disease	Diabetes Mellitus	0 0.0%	13 100.0%	0.86	0.83
		Cardiovascular disease	0 0.0%	4 100.0%		
		Dyslipidaemia / Hypertension	0 0.0%	6 100.0%		
		None	1 3.7%	26 96.3%		

From the above table we could found that, type of diet and the mother's education of the samples were found to be statistically associated with the level of physical activity at p value < than 0.05.

DISCUSSION

In the present study the researcher assessed the level of physical activity of school going children. It was found that majority of samples (49, or 98.0 %) demonstrated a moderate level of physical activity. Only one sample 1 (2.0 %) were with low physical activity. The mean weight was 146.99, the standard deviation weight score was 7.75, the average height of the samples in the was 40.84, with a standard deviation of 12.12. The average BMI was 18.67, with a standard deviation of 4.25. The BMI had a variance score of 18.11 and a mean percentage score of 29.53. It was also found that type of diet and the mother's education of the samples were found to be statistically associated with the level of physical activity at p value < than 0.05.

Memon G. A. *et al.*, (2022) conducted a study to examine the degree of physical activity in school-aged children. An investigation included four hundred children. The members' mean BMI SD was 25.05 1.19, putting them in the category of overweight. Based on evaluated BMI, 19.0 percent of individuals were obese, 17.8 percent were overweight, 60.7 percent were average age weight, and 2.5 percent were underweight, according to earlier study. Another study found that 107 (18.60%) of 575 respondents were overweight, while 41 (7.10%) were obese. A study of 328 male children found that 62 (19.0%) were overweight and 35 (10.60%) were obese.

Salome Abbert *et al.*, conducted a global survey in 2020 and determined that the lack of physical activity witnessed in children and adults raises severe concerns about their overall health. Children had a mean PA ordinariness of 22.3%, with France having the lowest (11.2%) and the United States having the highest (41.8%). Another survey conducted in the United States in 2005 discovered that 57% of adolescent boys and 40% of adolescent girls aged 14 to 17 were physically active.

In research by Verma K.A., Singh, and Patwardhan K. (2021), the authors sought to describe the levels of physical activity among students at a sizable central university in northern India that was sponsored by the public. The International Physical Activity Questionnaire (IPAQ-Long form) was used in this cross-sectional descriptive study to track the physical activity of 4586 pupils. The study's findings indicate that 2828 (61.7%) male and 1758 (38.3%) female students participated. Our sample's average age was 22.34 3.12 years. According to our findings, the 'Inactive' category includes around 14.5% of all research participants.

CONCLUSION

This study emphasizes the significance of engaging in physical exercise as a means of mitigating non-communicable diseases, such as obesity and hypertension, among students attending educational institutions. The implementation of primary prevention techniques, such as the introduction of mandatory physical education programs at the school level, has the potential to significantly mitigate the occurrence of non-communicable diseases and its subsequent long-term consequences within the student population.

BIBLIOGRAPHY

- Andarge, E., Trevethan, R., & Fikadu, T. (2021). Assessing the Physical Activity Questionnaire for Adolescents (PAQ-A): Specific and General Insights from an Ethiopian Context. *BioMed research international*, 2021.
- Aubert, S., González, S. A., Manyanga, T., Tremblay, M. S. (2020). Global Surveillance of Physical Activity of Children and Youth. In *The Routledge Handbook of Youth Physical Activity*, 7 (17-46).
- Global status report on physical activity (2022) World health organisation.
- He, G., Huang, W. Y., Wong, S. H. (2013). Physical Activity Research in Hong Kong From 1987 to 2012: Evidence on Children and Adolescents. *Asia Pac J Public Health*, 4.

- Kiyani, T., Kayani, S., Kayani, S., Batool, I., Qi, S., & Biasutti, M. (2021). Individual, interpersonal, and organizational factors affecting physical activity of school adolescents in Pakistan. *International Journal of Environmental Research and Public Health*, 18(13), 7011.
- Kracht, C. L., Joseph, E. D., & Staiano, A. E. (2020). Video games, obesity, and children. *Current obesity reports*, 9, 1-14.
- Raj, J. P., Norris, J. J., & Ploriya, S. (2020). Prevalence of low physical activity, its predictors and knowledge regarding being overweight/obesity: A community-based study from urban South India. *Journal of Family Medicine and Primary Care*, 9(1), 82. https://doi.org/10.4103/jfmpe.jfmpe_497_19.
- Reaven, P. D., Barrett-Connor, E., & Edelstein, S. (1991). Relation between leisure-time physical activity and blood pressure in older women. *Circulation*, 83(2), 559-565.
- Satija, A., Khandpur, N., Satija, S., Mathur Gaiha, S., Prabhakaran, D., Reddy, K. S., ... & Venkat Narayan, K. M. (2018). Physical activity among adolescents in India: a qualitative study of barriers and enablers. *Health education & behavior*, 45(6), 926-934. <https://www.jstor.org/stable/48615193>.
- WHO. (2014). Physical Inactivity: A Global Public Health Problem. Geneva: World Health Organization.
- Willett, W. C., Koplan, J. P., Nugent, R., Dusenbury, C., Puska, P., & Gaziano, T. A. (2006). Prevention of chronic disease by means of diet and lifestyle changes. *Disease Control Priorities in Developing Countries. 2nd edition*.