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Research Article

Assessment of physical activity among school-going children

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ABSTRACT

Physical activity (PA) is a cornerstone of healthy development in children, contributing to physical, mental, and cognitive well-being. This trend is particularly concerning among school-going children, who spend a substantial portion of their day in structured school environments, making schools critical settings for promoting and assessing PA. To find out the level of Physical Activity among school-going children. A Cross-Sectional Study was conducted among school-going children aged 11-15 years. 100 samples were taken. For the study, Inclusion Criteria was All students in the age group of 11-15 years from selected private & government schools in Ahmednagar. Students who are willing to participate. Exclusion Criteria were students with disabilities or who could not perform activities/ exercises. Students involved in any sports Activity or athletes. A study analysis among 100 children shows that the Pushup test (strength) and 20M Shuttle Run Test (endurance) are low, as compared to the Sit and Reach Test (Flexibility), which is high. Study analysis shows that Physical Activity among school-going children is affected. Children studied were found to have inadequate physical activity. Given the importance of physical activity in the overall development of the child, measures need to be taken to ensure the adequacy of physical activity among children.

Keywords: Physical activity, School children.

INTRODUCTION

Physical activity (PA) is a cornerstone of healthy development in children, contributing to physical, mental, and cognitive well-being [1]. This trend is particularly concerning among school-going children, who spend a substantial portion of their day in structured school environments, making schools critical settings for promoting and assessing PA [2]. The assessment of physical activity among school-going children is essential for understanding current activity levels, identifying barriers, and designing effective interventions to promote lifelong healthy behaviours.

Schools offer a unique environment to influence children's physical activity (PA) levels positively. This study aims to systematically review the evidence surrounding how PA affects academic performance by analysing how the frequency, intensity, time, and type of PA mediate academic performance outcomes [3]. It is widely acknowledged that regular physical activity is inextricably linked to a multitude of health benefits; extensive research supports PA's role in improving physiological well-being and reducing the risk of numerous chronic conditions [4].

Conversely, numerous studies have documented the ill effects physical inactivity can have on physiological health — it is a

modifiable risk factor for cardiovascular diseases, musculoskeletal disorders, obesity, hypertension, and several cancers (e.g., colon and breast) [5]. Regarding psychological health, PA has also been identified as an effective means of alleviating mild-to-moderate depression, improving mood, and reducing anxiety symptoms [6].

Physical activity is defined as any bodily movement that gives rise to increased energy expenditure above resting level [7]. High levels of PA in children and adolescents are recognised as indicators of subsequent physical, social, and mental health [8]. Consequently, children and adolescents are recommended to engage in at least 60 minutes of moderate-to-vigorous physical activity (MVPA) per day [9]. However, many children and adolescents worldwide do not meet this recommendation [10].

According to the Global Status Report on Physical Activity 2022, 81% of adolescents and 27% of adults currently do not meet the World Health Organisation's recommended levels of PA [11]. In India and globally, inadequate physical activity substantially contributes to the burden of non-communicable diseases (NCDs); globally, NCDs cause roughly 41 million deaths

annually ($\approx 71\%$ of all deaths), and a significant portion of this burden is attributable to insufficient physical activity [12].

It has been estimated that approximately 1.6 million deaths per year can be attributed to insufficient physical activity. Increasing population physical activity levels could prevent one in ten premature deaths and reduce the incidence of breast and colorectal cancers, diabetes, and heart disease [13].

Research focusing on school settings finds that children typically accumulate only 14–68 minutes of MVPA during school hours, representing just 3–22% of total school time, which is far below recommended levels and highlights missed opportunities within schools to promote PA [14]. Moreover, many studies on children's PA rely on subjective measures, such as self-report questionnaires, which are prone to recall bias and less reliable in younger children [15].

MATERIAL AND METHOD

After approval from the institutional ethical committee, the study was conducted

Study design

A cross-sectional study was conducted with 100 students in the school located in Ahmednagar. All the participants were students in the age group of 10-15 years from selected private & government schools in Ahmednagar. Students who were willing to participate were included in the study. Students with disabilities or who could not perform activities/ exercises, and students involved in any sports activities or athletes were excluded.

Study tools

The participants were asked to perform three tests: Pushup Test, Sit and Reach Test, and 20m Shuttle Run Test.

The push-up test was used to analyse the strength. Students were asked to perform the maximum pushups in one minute, and the count was recorded. To perform the test, the participant begins in a prone position with hands placed under the shoulders and the body held straight. At the signal, the child performs a push-up by lowering the body until the elbows form a 90-degree angle, then pushing back up to full arm extension.

The Sit and Reach Test was used to assess flexibility. Students were asked to lie in a long sitting position against the sit and reach box or ruler. Students were asked to slowly reach forward as far as possible without bouncing, holding the stretch for at least two seconds while keeping the knees flat on the floor. The best score out of two to three attempts is recorded.

The 20 m Shuttle Run Test was used to assess endurance. Students were asked to run between two lines 20m apart in time to recorded beeps. The speed at the start is quite slow. The subject continues running between the two lines, turning when signalled by the recorded beeps. After about one minute, a sound indicates an increase in speed, and the beeps will be closer together. This continues each minute (level). If the line is reached before the beep sounds, the subject must wait until the beep sounds before

continuing. If the line is not reached before the beep sounds, the subject is given a warning and must continue to run to the line, then turn and try to catch up with the pace within two more beeps. The subject is given a warning the first time they fail to reach the line (within 2 meters), and eliminated after the second warning.

RESULTS

Out of the 100 students, 60% of students were Male and 40% were Female.

Pushup Test -The mean pushups performed by students were 14.81 ± 5.716 .

Table 1: shows the details about the mean pushups according to the age group

Age	Mean value	Category	Normative value
11	10	Normal	12
12	11	Normal	13
13	11	High	14
14	12	High	15
15	13	Low	20
16	17	Low	41
17	20	Low	42

Sit and Reach Test -The mean of the Sit and Reach Test performed by students was 18.06 ± 3.83

Table 2: shows the details about the mean of sit and reach test according to the age group

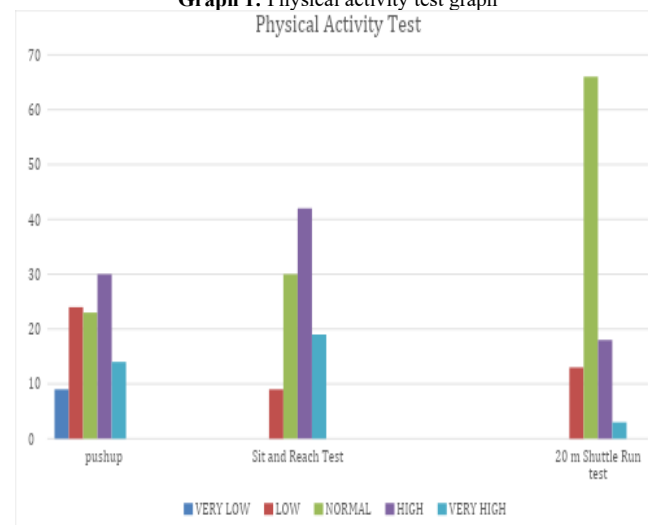
Age	Mean value	Category	Normative value
11	18	High	23
12	15	High	20
13	16	High	20
14	17	Normal	29
15	17	Normal	29
16	19	High	23
17	27	Very high	24

20 m Shuttle run test – the mean laps performed by the students were 8.94 ± 1.73 .

Table 3: Shows the details about the mean laps performed in the 20m shuttle run test according to the age group

Age	Mean value	Category	Normative value
11	9	Normal	11
12	10	High	12
13	8	Low	15
14	8	Low	15
15	9	Normal	13
16	10	High	14
17	12	High	14

Graph 1: Physical activity test graph



DISCUSSION

This study shows that children with push-up test (strength) have low physical activity, and those assessed with the 20m shuttle

run test (endurance) also demonstrate low physical activity, as compared to the sit and reach test (flexibility), where children showed high physical activity. According to Yogendra Singh Verma et al., in their study on “Physical Fitness Test Result in School Children and Effect of Age and Nutrition on Performance,” the research was conducted using the sit and reach test and the 20m shuttle run test. Out of 270 students, 169 (62.6%) were boys, and 101 (37.4%) were girls. The age-wise distribution revealed that 33.3% of participants belonged to the 8–9-year group, 25.5% to the 9–10-year group, 20% to the 10–11-year group, and 21.5% to the 11–12-year group. The study concluded that age is significantly associated with all components of physical fitness, while gender also showed a significant association with overall physical fitness. Assessment of physical activity levels among children aged 10–15 years in select private and government schools of Bangalore urban district during covid-19 pandemic—a cross-sectional study.

Sanjay K. Jayaram*Department of Public Health, Rajiv Gandhi University of Health Sciences, Bangalore, India, in their study that the physical activity levels (in school, travel to and from places and recreational activities) among school going children aged 10-15 years. The participants mean age was 13.73 (0.856 SD) years and median age was 14 years. The findings from our study show that, prevalence of physical inactivity among study participants was 21.25 %. The WHO recommends that adolescents engage in at least 60 minutes per day of moderate to vigorous-intensity PA ^[15].

CONCLUSION

The majority of School-going children (11-17 years) scored “NORMAL” physical activity with relatively better flexibility, but LOW strength and endurance. A notable proportion of students were in low/very low categories, indicating reduced engagement in regular physical activity. Very few achieved “very high” fitness level. Indicated limited participation in structured exercise or sports. Hence, students are not reaching optimal fitness levels required for healthy growth and long-term well-being. So, the future scope to increase Physical activity: Daily Physical Education Classes; Fitness drills; Sports clubs, and inter-school competition can be conducted.

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Conflict of interest

The authors declare that they have no conflict of interest.

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