

## Physical activity level of school children of age 10-13 years

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### **Abstract**

**Aim:** To assess physical activity level of school children of age 10-13 years.

**Objectives:** To assess and grade physical activity level in children of age 10-13 years using Physical Activity Questionnaire for Children (PAQ-C) classified into: Light Physical activity; Moderate Physical activity; Moderate to vigorous Physical activity and High Physical activity.

**Methodology:** This is Questionnaire based survey study which was conducted on 100 school going children of 10-13 years who were present on the day of survey using Physical activity questionnaire for children (PAQ-C). Data was collected and analyzed.

**Result:** In this study we found that out of 100 children maximum 52% children were engaged in moderate to vigorous level of physical activity (MVPA), 25% were engaged in moderate level of physical activity (MPA), 21% were engaged in vigorous level of physical activity (VPA), 1% in low physical activity level (LPA) and only 1% in high physical activity level (HPA).

**Conclusion:** The study suggests that more children should be engaged in physical activity which will help in reducing the health risks.

**Keywords:** PAQ-C, Physical activity, school children

### **1. Introduction**

Physical activity is an integral component of a healthy lifestyle in today's modern world [1]. Physical activity by WHO is defined as any bodily movements produced by skeletal muscles that requires energy expenditure. Further WHO classified energy expenditure in terms of: - 1) Light physical activity when heart beats slightly faster than normal and person can talk and sing. 2) Moderate activities are when heart beats faster than normal and person can talk but not sing. 3) Vigorous activities are when heart rate increases a lot and person can't talk or talking is broken up by large breaths [2]. Dietary and lifestyle factors play an important role in the development of non-communicable diseases (NCDs), like diabetes, cardiovascular diseases and obesity. Consumption of High energy, high fat diet and deterioration in dietary quality coupled with sedentary behaviour often causes accumulation of adipose tissue and consequently, a progressive rise of overweight [2].

Recommended Physical activity for children (National guidelines in the year 2010) stated that children should participate in 60 minutes or more of daily physical activity, most of which should be moderate to vigorous in intensity [3]. WHO recommendation for children of all ages requiring vigorous physical activity 3 times a week for 60

minutes [2]. Physical activity level is assessed by using various physical activity scales. In this survey physical activity questionnaire (PAQ-C) is used which is validated for children and adolescence. It showed good discrimination between low and high physical activity level and is simply understood by all participants in the study [5]. Physical activity may promote weight loss, reduction of visceral fat, lower blood pressure and even prevent of the onset of type 2 diabetes [2]. Engaging in regular physical activity during childhood is hypothesized to reduce the health risks associated with inactivity and benefit health both during childhood and adulthood [1]. U.S department in the year 2010 stated that regular physical activity can strengthen muscles and bones, help young people to maintain a healthy body weight and reduce the likelihood of high blood pressure, cholesterol or type 2 diabetes [4]. The first U.S report card on physical activity for children and youth which was released in April 2014, by the National Physical Activity Plan Alliance and the American College of Sports Medicine found that only about a quarter children ages 6-15 meet that recommendation [4]. Role of school:-The school has been identified as a key setting for the promotion of physical activity to young people. School attendance is a generic part of childhood; therefore schools provide a considerable and logical setting for physical activity promotion [1]. There are number of types of

physical activity that school can support as a part of comprehensive school physical activity program (CSPAP), which encompasses physical education, interscholastic sports, intermural sports and physical activity clubs, classroom physical activities breaks, before school access to physical activity opportunities or facilitates, recess for elementary school students, walking and biking to school, sharing facilities with community physical activity organizations, and opening physical activity facilitates to families outside of school hours[4]. School represents a suitable for intervention programme to promote physical activity to benefit health. Although schools provide an important context for promoting physical activity in children, physical education class may provide only a limited contribution to National Physical activity recommendation [3]. Nowadays, physical activity level in children is reduced due to factors like change in lifestyle which includes watching television, playing games on computer for long hours, change in eating habits and various other reasons. Children have been found not to compensate for physical activity after school when physical activity opportunities are restricted during the school day,

additional school- based opportunities to engage children in physical activity beyond physical education class are warranted. Considering this view need was felt to carry out assessment of physical activity level in school children of age 10-13 years [7].

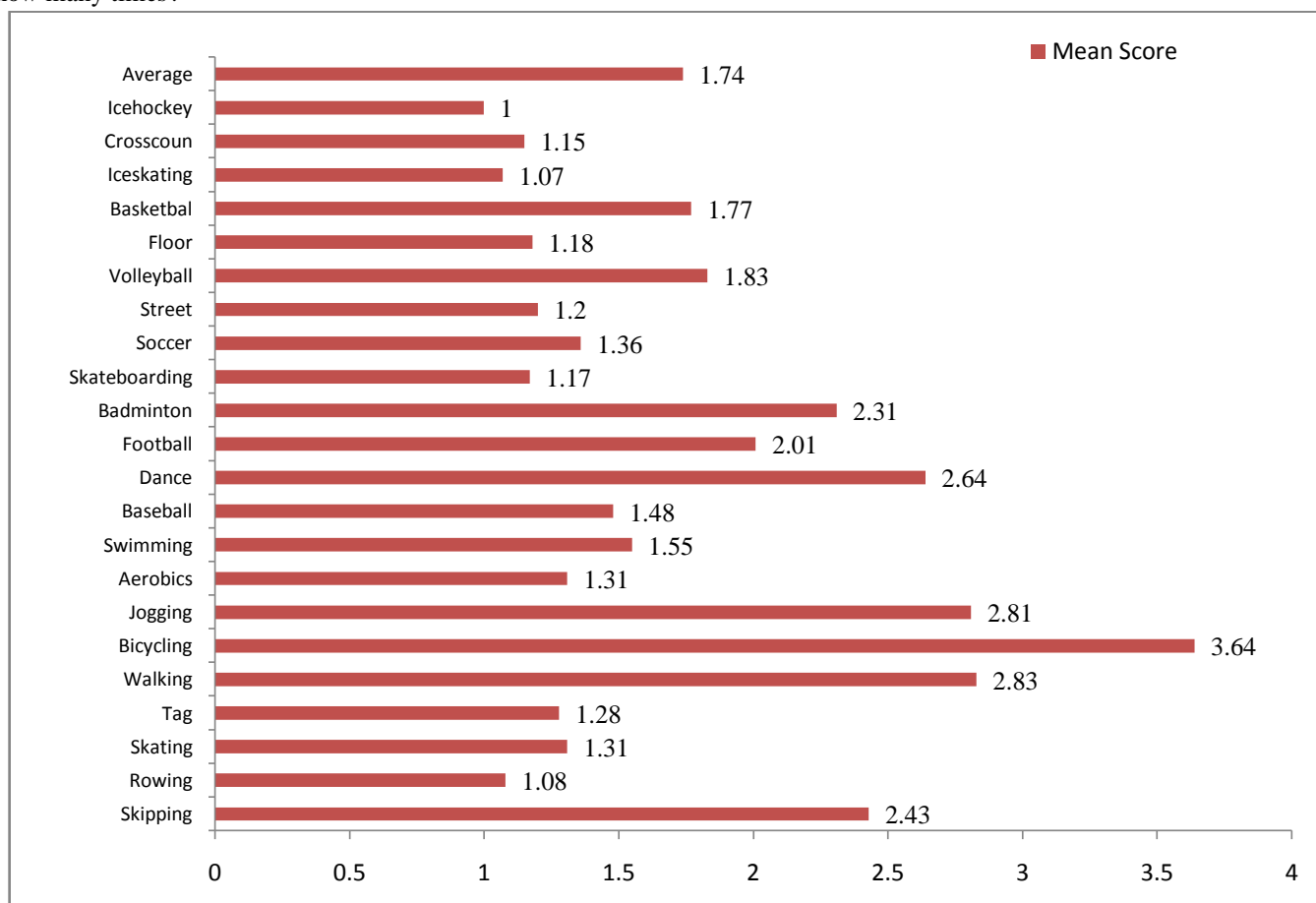
## 2. Materials and Methods

Before the commencement of the study pre-requisite permission was taken from the ethical committee of institute and from the school authorities. Procedure was explained to the students and principal of the school. Informed written consent was taken. It was an observational cross sectional study done with the help of questionnaire (PAQ-C)<sup>5</sup> distributed in school going children of 10-13 years with the sample size of 100 were included in the study. Students absent on the day of survey were excluded.

## 3. Results and data analysis

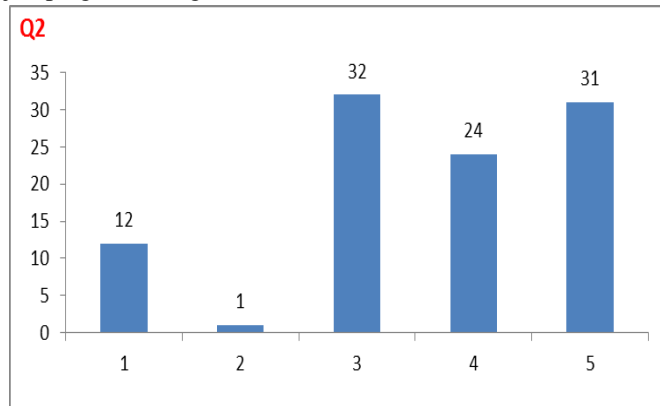
Data analysis was done using SPSS version 20 expressed in percentage.

Q.1 Physical activity in your spare time: Have you done any of the following activities in the past 7 days (last week)? If yes, how many times?



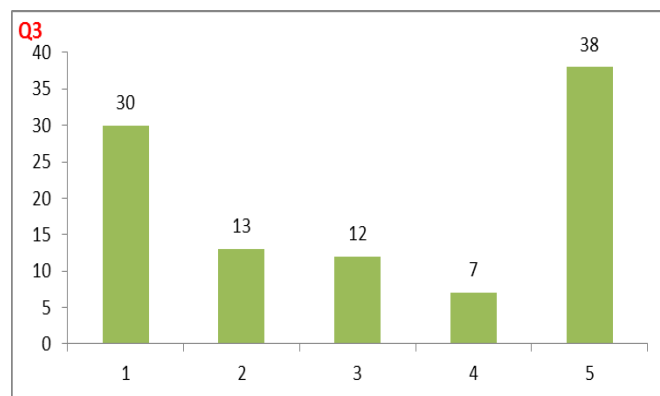
The above table and graph shows that type of maximum physical activity done in spare time is bicycling and walking 3-4 times per week as most of the activities are not practiced in Indian setup.

Q.2 In the last 7 days, during your physical education (PE) classes, how often were you active (playing hard, running, jumping, throwing)?



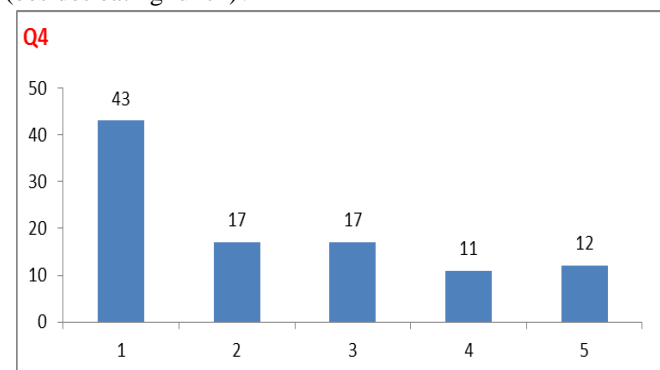
The above table and graph shows that maximum 32% children were sometimes active, 31% were always active, 24% were quite often active, 12% were not doing PE and 1% was hardly ever active in physical education (PE) class.

Q.3 In the last 7 days, what did you do most of the time at recess?



The above table and graph shows that maximum 38% ran and played hard, 30% sat down (talking, reading and doing school work), 13% stood or walked around, 12% ran or played little bit, 7% ran around and played quite a bit most of time at recess.

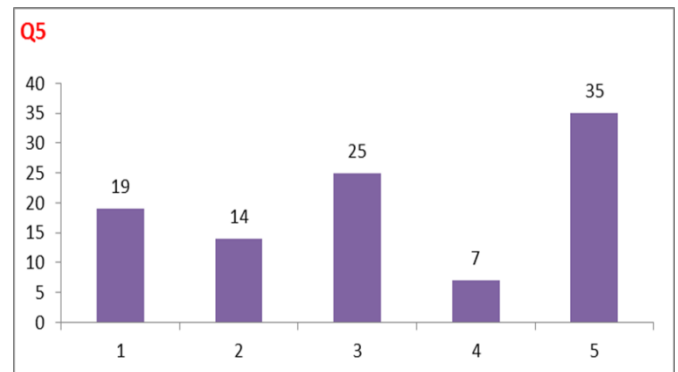
Q.4 In the last 7 days, what did you normally do at lunch (besides eating lunch)?



The above table and graph shows that maximum 43% sat down, 17% stood or walk around, 17% ran or played

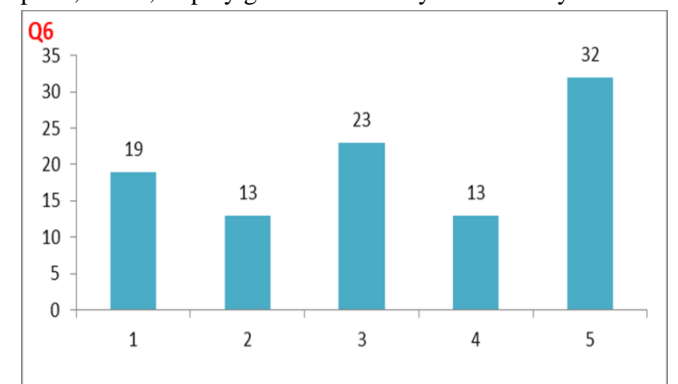
little bit, 12% ran and played hard and 11% ran around and played quite a bit normally at lunch

Q.5 In last 7 days, on how many days right after school, did you do sports, once, or play games in which you were very active



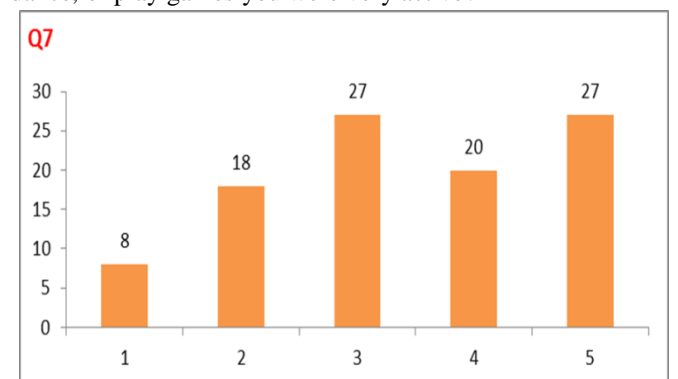
The above table and graph shows that maximum 35% were active 5 times, 25% were 2 or 3 times, 19% were not active, 14% were 1 time last week and 7% were 4 times last week right after school.

Q.6 In the last 7 days, on how many evenings did you do sports, dance, or play games in which you were very active?



The above table and graph shows that maximum 32% were active 6 or 7 times, 23% were 2 or 3 times, 19% were not active, 13% were 1 time and 13% were 4 or 5 times last week in evening.

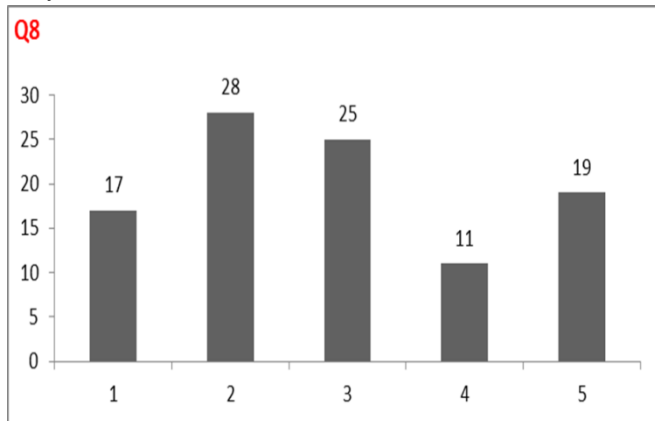
Q.7 On the last weekend, how many times did you do sports, dance, or play games you were very active?



The above table and graph shows that maximum 27% were active 6 or more time, 27% were 2 - 3 times, 20%

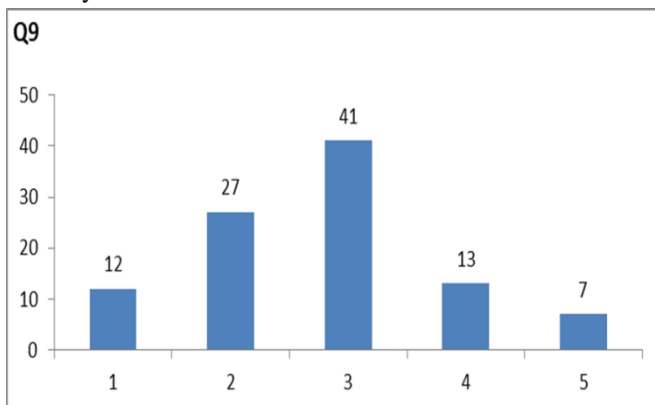
were 4 -5 times, 18% were 1 time and 8% not active last weekend.

Q.8 which one of the following describes you best for the last 7 days?



The above table and graph shows that maximum 28 of them did physical activity in their free time for 1-2 times, 25% often did physical activity, 19% very often did physical activity, 17% spend doing things that involve little physical effort and 11% quite often did physical activity in free time last week.

Q.9 Mark how often you did physical activity (like playing sports, games, doing dance, or any other physical activity) for each day last week?



The above table and graph shows that maximum 41% were doing medium level, 27% little bit, 13% often, and 12% were not doing and 7% were very often doing physical activity each day last week.

#### 4. Discussion

This study was done to know the physical activity level of children of age 10-13 years. In this study 100 children's were assessed. In Survey, assessment revealed that in Q.1 which studied about children engaged in various physical activities reported that physical activity done in spare time was walking and bicycling 3-4 times per week. The reason could be in Nagpur schools are nearer to the children's residence so bicycling and walking could be a convenient transport. So, this could be the reason that in Nagpur bicycling and walking is mostly practiced. Cooper et al (2016) 07 (06)

al in 2005 reported that bicycling and walking increases physical activity level [6].

In Q.2 we found that maximum 87% children were active and only 13% children were not active in physical education class. The reason could be physical education class in Nagpur school is of less duration, which is not sufficient for children to engage themselves in physical activity. Nicola et al in the year 2006 stated that in school days, physical education (PE) and playtime enable children to engage in regular physical activity [7].

In Q.3 out of 100 children's 38% ran and played hard most of the time at recess. The reason could be children were busy in finishing their homework, lazy or not encouraged by parents for physical activity.

In Q.4 it was found that maximum 43% out of 100 children's sat down normally at lunch. The reason could be the school children in Nagpur could be lazy or engrossed in their studies.

Trost et al in 2008 studied on physical activity level among children attending after school programs found that after school programs seem to be an important contributor to the physical activity of attending children [8]. In Q.5, 35% children's were active 5 times and 19% were not active last week right after school the reason could be children's are nowadays engage in their classes and most of children like to spend time on television viewing after school. In this survey which was carried out in Nagpur school it was found majority of children's were engage in physical activity.

De Baere's et al in 2015 studied on temporal patterns of physical activity and sedentary behaviour in 10-14 years children on weekdays found that physical activity level was highest during the early evening and school hours: the late evening segment was significantly less active and showed the highest proportion of sedentary time[9]. But it was found that in Nagpur school maximum 32% children were active 6 or 7 times and only 13% were 1 time active last week in the evening.

In Q.7 it was found that 27% children were active 6 or more time and only 8% were not active last weekend. Fairclough et al in 2015 studied on weekday and weekend sedentary time and physical activity in differentially active children found that the most active children maintain their sedentary time and physical activity levels at weekend, while among less active peers weekend sedentary time and physical activity at all intensities was lower[10].

In Q.8, 28 children's out of 100 did physical activity in their free time for 1-2 times last week and in Q.9, out of 100 children's 41% were doing medium level physical activity and 12% were not doing physical activity each day last week.

In this study we found that out of 100 children maximum 52% children were engaged in moderate to vigorous level of physical activity (MVPA), 25% were engaged in moderate level of physical activity (MPA), 21%

were engaged in vigorous level of physical activity (VPA), 1% in low physical activity level (LPA) and only 1% in high physical activity level (HPA). (Result)

In this study which was done to know the level of physical activity in children's found that in Nagpur school maximum children's are engaged in moderate to vigorous level of physical activity.

Only 1% of children are engaged in low physical activity level as nowadays, children are attracted more to the world of electronic media. It could be children's like to spend their most of the free time on viewing television, playing games on computers, project work, spend time on print outs which is difficult for average middle class family and time spend on organizing. A National Kaiser Family Foundation (US) Survey found that children age 8-18 years had an average media usage time of 6 hours and 21 minutes daily. Total media exposure time for most of the children exceeded the time spent in all other activities except sleep[11].

So, there is a requirement that more children's should be engaged in physical activity by increasing the duration of physical education class, engaging children in one of the physical activity at least 3 times per week and the motivation of the parents to engage their children's in vigorous level of physical activity which reduces the health risks.

## 5. Conclusion

This study concluded that out of 100 children maximum 52% children were engaged in moderate to vigorous level of physical activity (MVPA), 25% were engaged in moderate level of physical activity (MPA), 21% were engaged in vigorous level of physical activity (VPA), 1% in low physical activity level (LPA) and only 1% in high physical activity level (HPA).

## Recommendations

1. This type of study should be carried out in larger population.
2. The awareness and benefits regarding physical activity should be increased in children, parents and in their schools.
3. The children should be motivated by their parents to engage in physical activity.
4. In school, Physical education class duration should be increased and comprehensive school physical activity program (CSPAP) should be followed.

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