



Survey on Physical Activity Among Adolescents in Pune City

Neelkamal Boro¹, Dr. Sandipraj S Autade², Dr. Swapnil S Vidhate³

¹Ph.D. Scholar Bharati Vidyapeeth (Deemed to be University) College of Physical Education, Dhankawadi, Pune, Maharashtra, India.

²Associate Professor Bharati Vidyapeeth (Deemed to be University), College of Physical Education, Dhankawadi, Pune, Maharashtra, India.

³Professor Bharati Vidyapeetham (Deemed to be University), College of Physical Education, Dhankawadi, Pune, Maharashtra, India.

Emails: neelkamal.boro@bharatividyapeeth.edu¹, sandipraj.autade@bharatividyapeeth.edu², swapnil.vidhate@bharatividyapeeth.edu³

Abstract

The main aim of the study was to assess the physical activity among adolescents of Pune City. For this study total 500 students were randomly selected from Pune city. The subject's age was ranged in between 13-17 years. For the purpose of collecting the data the researcher used and selected International Physical Activity Questionnaire (IPAQ) is a widely used instrument for assessing physical activity levels in various populations by (Craig et al., 2003). The questionnaire is divided into four domains. These are Leisure-Time Physical Activity: Activities during discretionary time, such as sports, exercise, and recreational activities. Occupational Physical Activity: Activities related to work or employment. Transportation Physical Activity: Activities related to commuting, such as walking or cycling. Household and Garden Physical Activity: Activities related to household chores and gardening. Data were measured by IPAQ questionnaire which is used to calculate the total metabolic equivalent of task (MET) minutes per week. MET is a unit that represents the energy expenditure of an activity relative to resting metabolic rate. MET values are assigned to different levels of physical activity intensity (e.g., walking, moderate-intensity activities, vigorous-intensity activities), and the total MET minutes per week are calculated by multiplying the duration and frequency of each activity. Percentage was used as a statistical tool analyses the data. The result of the study revealed that students 57.6% (288) are less involved in physical activity, where as 23.4% (117) students are moderately involved in physical activity and 19% (95) students are highly involved in physical activity.

Keywords: Survey, Physical Activity, Adolescents, IPAQ, MET, Pune-City.

1. Introduction

Adolescence is a crucial transition period, marked by significant physical, emotional, and social changes. During this phase, young people develop their identities, explore their independence, and form crucial habits that shape their future health and well-being. Regular physical activity is essential for building strong bones and muscles, reducing the risk of chronic diseases, and improving mental health.

However, adolescents today are facing a growing challenge: a decline in physical activity levels and an increase in sedentary behavior and screen time. These lifestyle factors play a pivotal role in their physical fitness, mental health, and overall well-being. This is particularly concerning in urban environments like Pune city, where adolescents often have limited access to safe and green spaces

for physical activity. Additionally, the rise of technology and digital devices has led to a significant increase in screen time, further displacing physical activity from their daily lives. Despite the growing awareness of the importance of healthy lifestyle habits, research indicates that adolescents globally, including those in India, are not meeting recommended guidelines for physical activity and are exceeding screen time recommendations [1]. This raises concerns about potential consequences such as increased risk of obesity, chronic diseases, and mental health issues. Moreover, if the population's physical activity levels continue to decline, public health agencies will face an even greater challenge, as this condition could further contribute in development of disorders such as diabetes, obesity, hypertension, and other co morbidities linked to physical inactivity (Siordia, 2020). Although, several studies are being conducted across the world to find out the status of physical activities, sedentary behavior and screen time spent by people but there are very few studies conducted in India. Therefore, present cross-sectional study has been planned with a view to assess the physical activities, sedentary behavior and screen time of adolescents [2].

2. Domains of Physical Activity

Leisure-Time Physical Activity: Activities during discretionary time, such as sports, exercise, and recreational activities.

Occupational Physical Activity: Activities related to work or employment.

Transportation Physical Activity: Activities related to commuting, such as walking or cycling.

Household and Garden Physical Activity: Activities related to household chores and gardening as shown in Table 3.

3. Methodology

This was a survey study. The researcher handed over the three structured questionnaires (viz., physical activity, sedentary behavior, and screen time) to the sample-subjects (n=570) along with pencil and eraser [3]. The subjects were instructed to write their address (residential), and demographic information as Shown in Table 1 (e.g., age, sex etc.).

They were instructed to read the information as mentioned in the first page of the questionnaires finally, it was found that the questionnaires of 500 students were properly filled in and hence accepted for analysis. The International Physical Activity Questionnaire (IPAQ) is a widely used instrument for assessing physical activity levels in various populations. Developed by an international consortium of researchers, IPAQ is designed to provide a comprehensive and standardized measure of physical activity across different cultural settings. The questionnaire is available in several versions, including short and long forms, and it can be adapted for various age groups.

- IPAQ aims to measure physical activity across various domains, including leisure-time activities, occupational activities, commuting activities, and household activities.
- It provides estimates of total physical activity as well as separate assessments for moderate-intensity and vigorous-intensity activities.

4. Method of Measurement of Variable

Physical Activity was the variable for this study. The data as obtained in terms of the responses from the questionnaire were analysed primarily considering percentage method with a view to find out the level of the selected variables.

- Responses from the IPAQ questionnaire are used to calculate the total metabolic equivalent of task (MET) minutes per week. MET is a unit that represents the energy expenditure of an activity relative to resting metabolic rate.
- MET values are assigned to different levels of physical activity intensity (e.g., walking, moderate-intensity activities, vigorous-intensity activities), and the total MET minutes per week are calculated by multiplying the duration and frequency of each activity [4].

5. Discussion and Conclusion

The percentage wise results of physical activity level have been presented in Figure 1. The results help to interpret that majority of adolescents engage in low physical activity [5]. The physical activity level was categorized into low, moderate and high, as Shown in Figure 1.

- 57.6% adolescents engage in low physical activity
- 23.4% adolescents engage in moderate physical activity
- 19 % of adolescents involve in high physical activity

Table 1 Socio-Demographic Characteristics of Study Participants

| Variable | | Frequency | Percentage |
|-----------------------|---------------|-----------|------------|
| Gender | Male | 261 | 52.2% |
| | Female | 239 | 47.8% |
| Age | 13 years | 110 | 22% |
| | 14 years | 100 | 20% |
| | 15 years | 94 | 18.8% |
| | 16 years | 120 | 24% |
| | 17 years | 76 | 15.2% |
| Socio economic Status | Low Income | 52 | 10.4% |
| | Middle Income | 380 | 76% |
| | High Income | 68 | 13.6% |

Table 2 Results of Descriptive Statistics in Vigorous Physical Activity

| | | Statistic | Std. Error |
|-----|-----------------------------|-----------|------------|
| VPA | Mean | 259.35 | 13.01 |
| | 95% CI for Mean Lower Bound | 233.77 | |
| | Upper Bound | 284.92 | |
| | Median | 180.0 | |
| | Standard Deviation | 291.07 | |
| | Minimum | 0 | |
| | Maximum | 1680 | |
| | Range | 1680 | |
| | Interquartile Range | 420 | |
| | Skewness | 1.736 | 0.109 |
| | Kurtosis | 7.20 | 0.218 |

Table 3 Results of Descriptive Statistics in Moderate to Vigorous Physical Activity

| | | Statistic | Std. Error |
|------|-----------------------------|-----------|------------|
| MVPA | Mean | 433.45 | 19.78 |
| | 95% CI for Mean Lower Bound | 394.57 | |
| | Upper Bound | 472.32 | |
| | Median | 315.0 | |
| | Standard Deviation | 442.47 | |
| | Minimum | 0 | |
| | Maximum | 3360 | |
| | Range | 3360 | |
| | Interquartile Range | 510.0 | |
| | Skewness | 1.994 | 0.109 |
| | Kurtosis | 1.786 | 0.218 |

Fig. 1 Physical activity level of adolescents

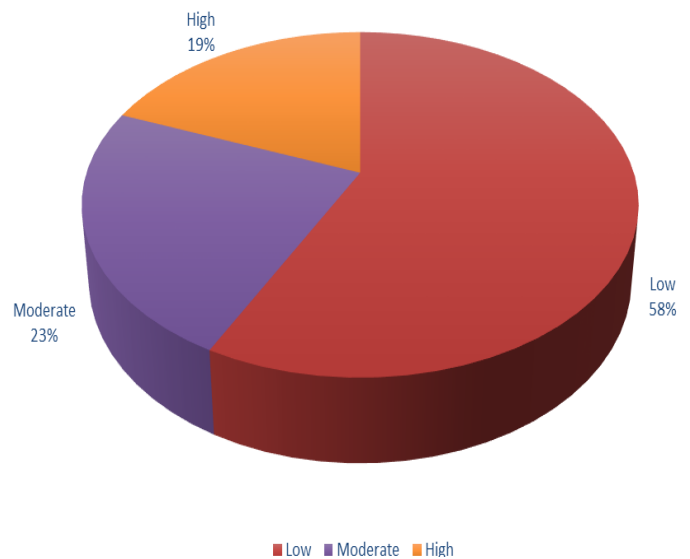


Figure 1 Descriptive Statistics of Overall Results of Physical Activity Level of Adolescents

Thus the results help to interpret that a significant portion of adolescents do not meet the recommended guidelines for physical activity as shown in Table 2. This has implications for the overall health and well-being of adolescents, as regular physical activity is essential for preventing



chronic diseases and promoting healthy development.

References

- [1]. Cannata, F., Vadalà, G., Russo, F., Papalia, R., Napoli, N., &Pozzilli, P. (2020). Beneficial effects of physical activity in diabetic patients. *Journal of Functional Morphology and Kinesiology*, 5(3), 70. <https://doi.org/10.3390/jfmk5030070>
- [2]. Carnethon, M. R. (2009). Physical activity and cardiovascular disease: How much is enough? *American Journal of Lifestyle Medicine*, 3(1 Suppl), 44S–49S.
- [3]. Carson, V., Tremblay, M. S., Chaput, J. P., &Chastin, S. F. M. (2016). Associations between sleep duration, sedentary time, physical activity, and health indicators among Canadian children and youth using compositional analyses. *Appl Physiol Nutr Metab*, 41(3), S294–302
- [4]. Caspersen, C. J., Powell, K. E., & Christenson, G. M. (1985). Physical activity, exercise and physical fitness: definitions and distinctions for health-related research. *Public Health Reports*, 100(2), 126–131.
- [5]. Cavill, N., Biddle, S., & Sallis, J.F. (2001). Health enhancing physical activity for Young people: Statement of the United Kingdom expert consensus conference. *Pediatric Exercise Science*, 13, 12-25.