



## FACTORS PREDICTING PHYSICAL ACTIVITY AMONG ADOLESCENTS WITH DISABILITIES

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**ABSTRACT** **Aims & Objectives:** This study aimed to identify factors predicting physical activity levels among adolescents with disabilities and to explore their preferences for engaging in physical activity. **Material & Methods:** A cross-sectional survey was conducted between February and July 2024 at the Handicap and Pediatric OPD of GMCH, Chhatrapati Sambhaji Nagar, Maharashtra. The study involved 150 adolescents with disabilities and their parents or primary caregivers. Data on physical activity levels, barriers, and preferences for physical activity were gathered using a structured questionnaire. **Results:** The survey revealed that 56% of the adolescents were physically active for less than 3 hours per week. Anxiety (55%), lack of interest (20%), behavioral problems (15%), and parents' lack of time (10%) were the most common barriers. Younger children (10-14 years) were more active than older adolescents (15-19 years), engaging more frequently in recreational and organized group activities. Logistic regression analysis showed that independent variables as age, gender, actively spent hours and barriers were significantly predicted physical activity acceptance at 64.5% ( $R^2 = 0.645$ ,  $p < 0.01$ ). **Conclusion:** The study highlights significant barriers to physical activity among adolescents with disabilities, particularly anxiety and lack of interest. The findings emphasize the need for targeted interventions to promote physical activity, especially among older adolescents and those with severe impairments, to enhance their overall health and well-being.

**KEYWORDS :** adolescent, determinants, PA (physical activity)

**INTRODUCTION:**

Physical activity (PA) is a cornerstone of adolescent health and well-being. It is essential for physical fitness, mental health, and social development.[1] Physical activity (PA) and participation in sports are of great importance for children's health, and youths who engage in physical activity are more likely to be physically active as adults [2]. Regular physical activity (PA) provides adolescents with important physical, mental, and social health benefits. The process of cardiovascular disease (CVD) begins in childhood, and associated risk factors, including inactivity and obesity, track through adolescence (ages 11–25 years) into adulthood, imparting heightened risk of premature mortality. [3]

Being physically active is also considered as an important determinant when it comes to school performance [4]. The World Health Organization recommends that children and teenagers engage in moderate-to-intense physical activity for at least 60 minutes each day [5]. They should also engage in high-intensity exercises, such as those that promote bone strength and muscular growth, at least three times a week. Study has introduced comparable regulations [3]. The study found a strong relationship between the amount of time spent exercising and self-rated health (SRH) [6]. Higher levels of education have been linked to improved health and wellbeing, and there is mounting proof that regular physical activity improves cognitive ability and brain function. As a result, pupils that are healthier achieve higher academic goals [7,8].

However, studies have shown a decline in physical activity levels among adolescents in recent years, raising concerns about their overall health and future. There is a precipitous decline in physical activity and participation in organized sports across the teenage years, highlighting the need to understand influences on PA and sports participation among young people [9, 10]. Adolescence is a pivotal time to develop PA tendencies which extend to adulthood [2]. Thus, it's critical to identify PA's promoters and barriers. This research paper investigates the prevalence of physical activity among adolescents, identifies common barriers to participation, and examines factors influencing physical activity levels based on age and physical abilities. By answering these questions, this research will contribute to a better understanding of the factors influencing adolescent physical activity

and provide valuable insights for developing effective interventions to promote physical activity among this population.

**MATERIAL & METHODS:**

A cross-sectional survey was conducted between February and July 2024 at the Handicap and Pediatric OPD of GMCH, Chhatrapati Sambhajnagar, Maharashtra. The study involved 150 adolescents aged between 10 to 19 years. Participants were having a range of physical, sensory, or cognitive disabilities. Parental and adolescent consents were taken while conducting the study. Data on demographic information, physical activity levels, barriers, and preferences for physical activity were gathered using a structured questionnaire. The study was designed to explore the factors affecting physical activity engagement and examine relevant impact.

**DATA COLLECTION AND ANALYSIS:**

Data was collected through in-person surveys administered at the OPD. Study protocol followed after obtaining Ethical approval from the Institute. Statistical analysis was done using SPSS version 22.0 statistical software package for Microsoft Windows (SPSS Inc., Chicago, IL) and MS-Excel. Descriptive statistics was carried out for the demographic and other variables. Frequency distributions of all variables and statistical parameters were found in the form of mean, median, standard deviation, proportion of variable and related percentage. Logistic regression analysis has been applied to check the impact of predictors on physical activity.

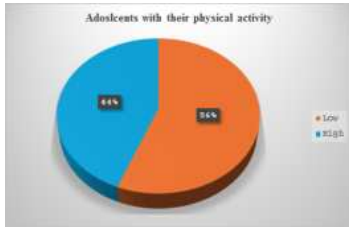
Demographic information included age, gender and disability type. Physical Activity Behavior included Physical Activity Questionnaire for Adolescents (PAQ-A). PAQ-A included the questions regarding frequency, duration, and type of physical activities engaged in over the past weeks. Barriers were included like anxiety, lack of interest of child, behavioral problem and lack of time of parent. Common barriers reported across the groups under these four barriers were as follows:

- Anxiety: Fear of judgment, discomfort in group settings.
- Lack of Interest: Boredom, lack of engaging activities.
- Behavioral Problems: Difficulty following structured routines.
- Parents' Lack of Time: Limited transportation, lack of support for participation in after-school programs.

Duration of physical activity by participants were also noted. Physical activity was measured based on the number of active hours per week, categorized into two levels namely Low (Less than 3 hours per week) and High (More than 3 hours per week).

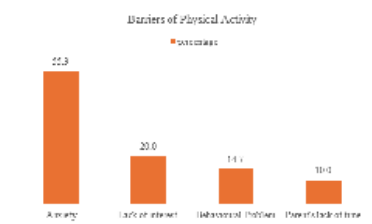
### RESULTS:

Out of 150 adolescents, the age of participants was ranging between  $14.13 \pm 1.5$  years. Also, 96 (64%) participants were from age-group 10 to 14 years and 54 (36%) were from age-group 15 to 19 years. Gender wise distribution showed 53% male and 47% female adolescents. 84 adolescents were reported low physical activity levels. It shows 56% adolescents in this study spending less than 3 hours per week for physical activity (Figure 1).



**Figure1:** physical activity by adolescents

The 150 participants were categorized based on the primary issues affecting their physical activity levels like anxiety, lack of interest, behavioral problem and parents lack of time. Figure 2 shows that anxiety is the uppermost barrier (55%) of physical activity by 83 participants followed by lack of interest of by 30 participants (20%).



**Figure2:** Distribution of barriers of physical activity

Disability type has been checked among 150 participants. Table 1 shows that 36 (24%) adolescents were showing muscular dystrophy among 150 participants. Among 10-14 years age-group, 61.45% disability were seen in (59) male adolescents, however 63% disability has been seen in (34) female adolescents of age-group of 15-19 yrs.

**Table 1:** Distribution with respect to disability type

| Disability type    | 10 to 14 yrs |      |       | 15 to 19 yrs |      |       | Grand Total |
|--------------------|--------------|------|-------|--------------|------|-------|-------------|
|                    | Female       | Male | Total | Female       | Male | Total |             |
| Amputation         | 0            | 2    | 2     | 0            | 1    | 1     | 3           |
| Cerebral Palsy     | 5            | 7    | 12    | 8            | 3    | 11    | 23          |
| Clubfoot           | 2            | 9    | 11    | 4            | 5    | 9     | 20          |
| Limb Difference    | 5            | 8    | 13    | 6            | 2    | 8     | 21          |
| Muscular Dystrophy | 13           | 13   | 26    | 7            | 3    | 10    | 36          |
| Polio              | 6            | 8    | 14    | 6            | 4    | 10    | 24          |
| Spina Bifida       | 6            | 12   | 18    | 3            | 2    | 5     | 23          |
| Total              | 37           | 59   | 96    | 34           | 20   | 54    | 150         |

Table 2 shows that significant association has been observed between physically activeness of adolescents and other variables like Gender, Age-group, duration of activeness of adolescents and barriers towards maintaining physical activity. Girls were more (84.5%) interested in physical activity as compared to boys.

**Table 2:** Association of physical activeness with variables

| Variable |                       | Physically |     | Total | Chi-square | p value |
|----------|-----------------------|------------|-----|-------|------------|---------|
|          |                       | No         | Yes |       |            |         |
| Barriers | Anxiety               | 37         | 45  | 82    | 159.05     | <0.001  |
|          | Behavioural Problem   | 7          | 16  | 23    |            |         |
|          | Lack of Interest      | 18         | 12  | 30    |            |         |
|          | Parents' Lack of Time | 8          | 7   | 15    |            |         |
|          |                       |            |     |       |            |         |

|            |                   |    |    |    |        |        |
|------------|-------------------|----|----|----|--------|--------|
| Gender     | Female            | 11 | 60 | 71 | 208.04 | <0.001 |
|            | Male              | 59 | 20 | 79 |        |        |
| Age-group  | 10 to 14          | 63 | 33 | 96 | 193.53 | <0.001 |
|            | 15 to 19          | 7  | 47 | 54 |        |        |
| Active hrs | Less than 3 hours | 40 | 44 | 84 | 154.07 | <0.001 |
|            | More than 3 hours | 30 | 36 | 66 |        |        |

Higher levels of anxiety were significantly associated with lower levels of physical activity ( $p < 0.05$ ) Among the 30 adolescents with a lack of interest, no physical activity levels were reported by 60% (18 adolescents). Among the 23 adolescents with behavioral problems, no physical activity levels were reported by 30% (07 adolescents). Among the 15 adolescents facing a lack of parental support due to time constraints which shows no physical activity by 08 adolescents (53.33%). (Table 2)

### ANALYSIS OF PREDICTORS OF PHYSICAL ACTIVITY LEVELS

Logistic regression analysis was applied to find factors predicting physical activity among adolescents. Independent variables were considered as age, gender, actively spent hours and barriers for dependent variable as physical activity workout. Model showed that these independent variables significantly predicted physical activity acceptance at 64.5% ( $R^2 = 0.645$ ,  $p < 0.01$ ).

It shows that age, actively spending hours and lack of interest of adolescents predicted interest in physical activity positively while gender, anxiety and behavioral problem showed it negatively. (Table 3). Hence higher levels of anxiety were significantly associated with lower levels of physical activity. Regression analysis showed that age and gender were significant predictor where age is positively predicting ( $\beta = 3.071$ ,  $p < 0.05$ ) and gender is negatively predicting negatively ( $\beta = -3.041$ ,  $p < 0.05$ ) All other factors were not significantly predictors.

**Table 3:** Regression analysis

|                     | B      | S.E.  | Wald   | Df | Sig.  | Exp(B) | 95% C.I. for EXP(B) |        |
|---------------------|--------|-------|--------|----|-------|--------|---------------------|--------|
|                     |        |       |        |    |       |        | Lower               | Upper  |
| Age group (1)       | 3.071  | 0.624 | 24.237 | 1  | 0.000 | 21.559 | 6.349               | 73.210 |
| Gender (1)          | -3.401 | 0.577 | 34.755 | 1  | 0.000 | 0.033  | 0.011               | 0.103  |
| Active hrs (>3 hrs) | 0.587  | 0.519 | 1.282  | 1  | 0.258 | 1.799  | 0.651               | 4.974  |
| <b>Barriers</b>     |        |       |        |    |       |        |                     |        |
| Anxiety             | -0.242 | 0.912 | 0.070  | 1  | 0.791 | 0.785  | 0.131               | 4.694  |
| Behavioural Problem | -1.374 | 1.063 | 1.669  | 1  | 0.196 | 0.253  | 0.031               | 2.035  |
| Lack of interest    | 0.629  | 0.981 | 0.411  | 1  | 0.522 | 1.875  | 0.274               | 12.822 |
| Constant            | -0.919 | 1.061 | 0.750  | 1  | 0.386 | 0.399  |                     |        |

### DISCUSSION:

Our finding that girls are more (84.5%) interested in physical activity whereas boys experienced less interest in physical activity (25.3%) is in line with other studies [9, 11]. In our study, age and gender were significant predictor of youth PA in model analysis. In a recent paper from Australia, peers influence children's PA most consistently through encouragement and positive modelling in sports activities [12]. In the study [13], neither parent or peer support nor interest towards PA were predictive of PA among adolescents. In our study, lack of interest was predictor towards interest in PA.

Only 10% adolescents showed up with lack of parental support out of which 53.33% were not involved in physical activity in our study. Lack of parental support is not predictor of physical activity in adolescents. In a review of 46 articles examining change in PA in children and adolescents aged 4–18 years, they found that parental support was not associated with change in physical activity [14]. 15 adolescents facing a lack of parental support due to time constraints out of which 8 shows no physical activity. Lack of parental involvement predicts lower activity levels. Many participants cited transportation issues, limited

access to community programs, or the absence of a parental role model in encouraging physical activity. Parents' Lack of Time Group preferred home-based activities or community-based activities that did not require significant parental involvement

Data revealed that higher levels of anxiety were significantly associated with lower levels of physical activity ( $p < 0.05$ ) with many reporting fear of failure or discomfort in group settings as primary barriers. Many adolescents with anxiety expressed a preference for individual activities like swimming, yoga. No physical activity levels were seen in more with a lack of interest. The lack of interest may be associated with low intrinsic motivation and boredom. Many adolescents in this group expressed a need for more engaging or novel physical activity options. Group with lack of interest preferred non-traditional physical activities (e.g., dance, video-based workouts), suggesting that novelty could be a motivator. 30% adolescents with behavioral problems have not doing physical activity. Behavioral issues such as impulsivity and difficulty adhering to structured programs were commonly cited barriers. Behavioral problems adolescents here showed a preference for structured but flexible activities like martial arts, parkour where they could have fun without strict rules.

### CONCLUSION:

Age and gender are the most significant predictor. Lack of interest by adolescent is the most positive predictor of low physical activity levels among adolescents with disabilities. Adolescents facing anxiety and behavioral problem showed a moderate trend toward lower activity. These findings suggest that interventions should be tailored to address specific barriers and focus on enhancing engagement through preferred activities and supportive environments.

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