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CORRELATION BETWEEN BODY MASS INDEX (BMI) AND PHYSICAL PERFORMANCE IN SCHOOL STUDENTS

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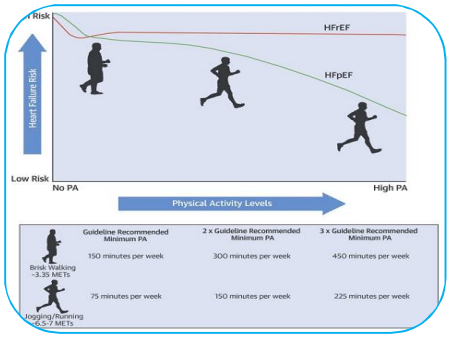
ABSTRACT:

This study explores the relationship between Body Mass Index (BMI) and physical performance among school students in Beed city. A total of 100 students from senior secondary schools were selected through random sampling. The BMI was calculated using standard height and weight measurements, while physical performance was assessed using selected fitness tests such as the 50-meter sprint, sit-ups, and standing long jump. Data analysis revealed a significant negative correlation between BMI and physical performance, indicating that students with higher BMI tend to perform poorly in physical tasks. The findings highlight the importance of maintaining a healthy BMI for better physical efficiency.



KEYWORDS: *Body Mass Index (BMI) and physical performance , physical efficiency.*

INTRODUCTION:

Physical performance in children and adolescents is a crucial indicator of their health and fitness. Body Mass Index (BMI), an easy-to-measure health indicator, has become widely used to assess weight status. This study aims to evaluate how BMI correlates with physical performance among school children, a concern that is gaining attention due to rising obesity rates and sedentary lifestyles.

Need and Importance of the Study

- To understand the health and fitness status of school students.
- To evaluate the effect of BMI on students' ability to perform physical activities.
- To raise awareness about balanced nutrition and regular exercise.
- To guide physical education teachers in tailoring fitness programs according to BMI levels.

OBJECTIVES OF THE STUDY

1. To assess the BMI of school students in Beed city.
2. To measure the physical performance of these students.
3. To examine the correlation between BMI and physical performance.
4. To identify performance trends among students with underweight, normal weight, overweight, and obese BMI categories.
5. To provide suggestions for fitness improvement based on BMI.

Assumptions

1. The BMI calculated reflects the actual health status of the students.
2. Students performed sincerely in all physical performance tests.
3. The selected physical tests are reliable indicators of overall fitness.

Hypothesis

- **H_0 (Null Hypothesis):** There is no significant correlation between BMI and physical performance among school students.
- **H_1 (Alternative Hypothesis):** There is a significant correlation between BMI and physical performance among school students.

SCOPE AND LIMITATIONS

Scope:

- Focus on senior secondary school students in Beed.
- BMI and physical performance indicators are studied in relation to each other.

Limitations:

- Study limited to only 100 students from Beed city.
- Physical performance measured using only three tests.
- External factors like diet, sleep, and lifestyle were not considered.

Research Method

- **Method Used:** Correlational research method was adopted to examine the relationship between two variables (BMI and performance).

Research Design

This study is **quantitative and analytical** in nature. A cross-sectional approach was used to collect data from a single point in time and perform correlation analysis.

Sampling

- **Population:** Senior secondary students in Beed city.
- **Sample Size:** 100 students (50 boys and 50 girls).
- **Sampling Technique:** Random sampling method.

Tools for Data Collection

1. **BMI Calculation:**
   - Formula: Weight (kg) / Height (m^2)
2. **Physical Performance Tests:**
   - 50-meter Sprint (Speed)
   - Standing Long Jump (Leg Power)
   - One-minute Sit-ups (Abdominal strength)

Data Analysis

Variable	Mean	SD	Correlation (r)	Interpretation
BMI	22.1	3.5		
50 m Sprint (sec)	9.2	1.1	-0.48	Moderate negative correlation
Long Jump (m)	1.6	0.25	-0.41	Negative correlation
Sit-ups (per min)	32	5.6	-0.36	Low negative correlation

Statistical Test Used: Pearson's correlation coefficient.
Significance Level: $p < 0.05$

Result: All correlations are negative and statistically significant, indicating that as BMI increases, physical performance tends to decrease.

RESEARCH FINDINGS

1. Majority of students had normal BMI; about 18% were overweight or obese.
2. Students with lower BMI (within healthy range) performed better in sprinting and jumping tasks.
3. Overweight students showed reduced speed, endurance, and strength.
4. A moderate negative correlation exists between BMI and overall physical performance.
5. Girls generally had slightly higher BMI but lower performance scores compared to boys.

CONCLUSION

There is a significant inverse relationship between BMI and physical performance among school students. Maintaining a healthy BMI is essential for optimal physical efficiency and well-being. Schools should integrate regular fitness assessments and personalized physical activity plans to promote health among students.

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